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A MONTHLY JOURNAL OF MEDICAL SCIENCES.

THE HUMBOLDT

Medical Archives.

EDITORS:

A. HAMMER, M. D., J. C. WHITEHILL, M. D.

SAINT LOUIS, MO.

VOLUME I.—1867-8.

"Celebrare monumentis annalium aliquid."

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INDEX.

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HUMBOLDT MEDICAL ARCHIVES.

VOL. 1. SEPTEMBER, 1867. No. 1.

SALUTATORY.

In venturing into the dangerous seas of Journalism, we, of the HUMBOLDT MEDICAL ARCHIVES, have undertaken a task of no mean importance. The responsibilities of such an undertaking have been carefully weighed, and their magnitude duly considered. The times demand a Medical Journal, which will be a reflex of the advanced state of medical science in the West. St. Louis is becoming so rapidly metropolitan in science, as well as in art and commerce, that they who stand back, will be lost in the whirlpool of events. Reform beckons the thoughtful to a careful survey of the present and the future. The public is awakening to the fact that physicians need something more than the beaten tracks of our forefathers. Empiricism must give way to rationalism in every thing connected with Medicine. We should no longer fold our arms quietly, and accept as true all that is taught by our contemporaries. Active and energetic men now move toward the common center of Progress. To accomplish these grand objects requires the

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ERRATA—

Page 4, line 26, read "pressed" for "passed."
Page 5, *a, b, c,* descriptive of Fig. 1. to be read continuously from "pelvis."
Page 8, bottom line, for "almays" read "always."
Page 9, line 18, for "secretions" read "sections."
Page 26, line 20, for "diarahea" read "diarrhœa."
Page 20, in description of figure, read "posterior" for "poster," and in line below for "coud" read "could."
Page 30, line 15, for "the" read "this rich."
Page 31, line 27, for "annoyance" read "arrogance," and on bottom line foa "natural" read "mutual."
Page 32, line 14, for "the" read "this knowledge."

tude duly considered. The times demand a Medical Journal, which will be a reflex of the advanced state of medical science in the West. St. Louis is becoming so rapidly metropolitan in science, as well as in art and commerce, that they who stand back, will be lost in the whirlpool of events. Reform beckons the thoughtful to a careful survey of the present and the future. The public is awakening to the fact that physicians need something more than the beaten tracks of our forefathers. Empiricism must give way to rationalism in every thing connected with Medicine. We should no longer fold our arms quietly, and accept as true all that is taught by our contemporaries. Active and energetic men now move toward the common center of Progress. To accomplish these grand objects requires the

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laborious co-operation of all who would advance the standard of Society, and in one branch of this Progress we shall strive to do our part.

Medical Journalism in the United States is being wonderfully changed, from the fact that new fields of intellectual wealth are every day being discovered, awaiting workers to till a soil heretofore considered mere sandy waste, but which is now known to yield abundant harvests to the honest and patient workers. To such the "HUMBOLDT" offers a cordial greeting.

In establishing our Journal we hope to awaken no invidious criticism, but to meet with success if we deserve it. The arena of medical science is large, and gladiatorism should be banished from it. The chivalric tournament of honorable competition is the one in which we throw the gauntlèt, and we will tilt in none other.

While the Faculty of the Humboldt Medical College are among the supporters of this Journal, and are its co-editors, its pages are open to the entire profession. Partisanship will be banished, and controversy frowned down. We are thus explicit from the outset, in order that none may be mistaken as to our position. We hope to have an independent and untrammeled press, where all who come with their colors shown shall be admitted.

Should our success be half as great as the assurances of our friends would warrant, we will increase the number of our pages beyond those of any Medical monthly in the country. As it is, we may safely say that no labor will be wanting to satisfy the views of the most fastidious. Our columns will be filled with original articles of a practical character, from the hands of men not unknown to the scientific public, as many have already signified their intention to contribute. Lectures, delivered by eminent teachers in the East, and in the Mississippi Valley, will be published in full from time to time. Experienced translators will furnish us with the latest continental intelligence, while no pains

will be spared to cull what is most valuable from the English, Scotch and Irish Journals. The domestic summary of American news will be such as to keep the profession always informed. With regard to book notices and reviews the usual slovenly recommendations will be dispensed with, and no work will be indorsed unless the merits of its contents call for it; hence, our readers may rely upon, at least, our humble convictions of the worth of all publications.

We have now presented ourselves as we wish others to see us, and on the pledges we give and keep, let our efforts be judged. We sow the seed and hope to reap the harvest with enduring toil; should we fail—but in the vocabulary of earnest workers, Richelieu was right, *there is no such word as "fail!"*

ORIGINAL COMMUNICATIONS.

ART. I.—A CASE OF MALFORMTION—ATRESIA ANI VAGINALIS—With Successful Operation for its Relief. By A. HAMMER, M. D., Professor of Surgery, &c.

Some three years since, a well-nourished and healthy-looking female child was brought to me from the country, for my advice as to the feasibility of an operation for the relief of the following abnormal condition, to-wit:

The integument of the perineum presented no trace of a raphé, nor indication of an anal opening. The part was quite resisting to the sense of touch; a fact significant of

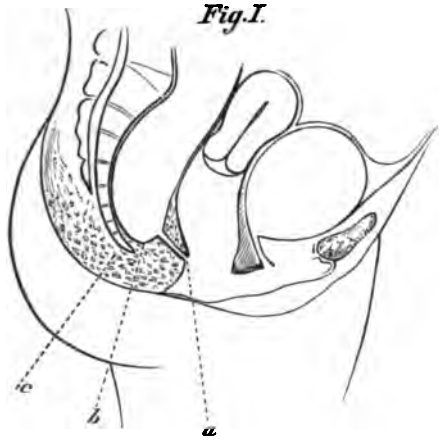
the ending of the rectum some distance from the cutaneous surface. Immediately beneath the hymen, at the posterior wall of the vagina, was a small opening, scarcely admitting a probe the size of a raven's quill, through which opening fecal matter passed out at intervals. A small curved, metallic bougie was introduced in a direction upwards and backwards a distance of about two inches. By elevating the handle of the instrument, the point of the curved end was passed downwards, and could be faintly recognized by the index finger of the right hand applied to the perineum; from which it was judged that the cul-de-sac of the rectum was at least one inch above the cutaneous surface. This diagnosis was further substantiated by the dilation of the fistulous opening, sufficient to admit the introduction of a much larger sized metallic bougie, which being firm, permitted more decided manipulation.

The following plan of operation, differing somewhat from the procedure of other surgeons in similar cases, was adopted:

A strong, curved, steel catheter, open at both ends, grooved on its concave side, and containing within a stylet, (a modification of Frère-Côme's *sonde à dard*, used in suprapubic operations of Lithotomy,) was passed through the fistulous canal; the end being in contact with the posterior wall of the rectum, was carried downwards, by elevating the handle of the instrument, and passed with considerable force against the bottom of the *cul-de-sac.* When the end of the instrument could be readily recognized by the finger, through the integument, the stylet was pushed forwards, piercing the perineum just at the spot that should form the posterior boundary of the anal opening. A strong, slightly curved, sharp-pointed bistoury was inserted into the fistulous opening, and being guided by the groove in the catheter, was made to cut its way backwards and outwards, entirely separating the parts by one incision. A clear insight of the anatomical relations was thus obtained; which may be illustrated

by fig. 1, representing a median antero-posterior section of the pelvis,

Fig.I.



a—The fistulous opening at the foot of the hymen.
b—The cul-de-sac of the rectum.
c—Cellular adipose tissue, of considerable density.

occupying a space an inch in thickness, between the rectal cul-de-sac and the integument, and between the anterior wall of the rectum, and the posterior wall of the vagina; the latter space being traversed by a tubular canal, an inch in length, oblique in direction, communicating with, and being an appendage to, the rectum.

The next step in the operation was the removal of two semilunar portions of integument, one on the right and the other on the left of the median section already made, of such size as was judged proper for the new anal opening. (See fig. 2.) The rectum, still transfixed at its posterior part by the stylet, was drawn downwards and united to the integument by two stitches, one on each side of the instrument, which latter was then withdrawn, and a third stitch carried through just at the point that had been transfixed by the stylet. The rectum having thus been fixed to the integument at the posterior angle of the anal opening, the appendage or canal was severed from its anterior wall, dissected out, and removed in its entire length. Four sutures

were then made to unite the median wound, commencing at the fistulous opening in the vagina, and going backwards to the spot making the anterior boundary of the anal opening, including the space representing the perineum proper; after which, the operation was completed by fixing the lateral and anterior walls of the rectum, to the integument within the oblong space, by five sutures.

Fig. II.

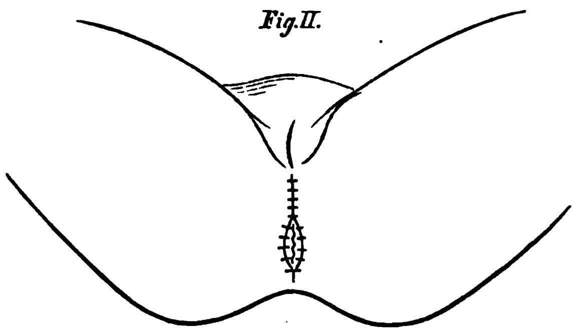


Fig. 2 represents the case after the operation.

The healing process in the beginning went on so well, that flattering hopes were entertained of union by "first intention" of the wound representing the raphé of the perineum, but the frequent dripping of urine, which could not be prevented in a child of such tender age, so irritated the parts that suppuration set in, and union was had by "second intention," leaving a longitudinal cicatrix, one and a half lines in breadth. The anal shaped wound of the anus healed kindly, requiring no special attention.

During the two days following the operation, enormous quantities of fecal matter were evacuated, constituting the best possible tent to keep the anus open.

At this present time, now about three years since the operation was performed, the child has complete and entire control over the alvine dejections.

The case offers some features deserving of special notice.

Atresia ani vaginalis, an arrest of development in the process of separating the genito urinary organs from the intes-

tinal tract at a certain period of fœtal life, usually appears in a different form than was illustrated in the present instance. Commonly there exists a single fistula, "lip shaped," as it is called by Professor Roser, being a direct communication between the walls of the vagina on the one hand, and the rectum on the other, lying close to each other, occasionally attended with a prolapse of the mucous membrane of the rectum through the fistulous opening into the vagina, simulating an elongated vermiform appendix. But in the case under consideration, the two walls were separated by firm, dense, cellular tissue, and the fistula was a *fistulous canal*, an inch in length, the walls of which were, anatomically speaking, the same as those of the rectum. Furthermore, the external opening of the fistulous canal was provided with a miniature sphincter muscle, made up of the muscular layers of the vagina, which prevented continual alvine discharges.

The plan of operation which was adopted in the present instance is preferable to other methods for the following reasons: First, That the operation is completed in one session. Second, That there is none of that tearing and bruising which is so often followed by severe inflammation. Third, That calculations as to the size of the anal opening are more positive. Fourth, That the posterior boundary of the anus can be precisely determined by the forcing down of the *sonde a dard* upon the posterior of the rectum. Fifth, The brief space of time occupied in the operation—even though many sutures may be required.

Art. II.—Resumè of Forty-Six Uterine Sections. By Montrose A. Pallen, M. D., Professor of the Institutes of Medicine and Gynæcology, in the Humboldt Medical College, St. Louis, Missouri.

It has become very fashionable of late to decry any effort made toward progress in medicine or surgery. The ancient

dogmas of the past are still defiantly flung to the breeze. Like Macbeth, they "laugh a siege to scorn;" but, "Birnam's wood doth move to Dunsinane." To the philosophic minds of Simpson, Sims, Greenhalgh, Barnes and Emmet, we are indebted for much which has driven "Old Fogyism" to his stronghold within the shadows of the inner temple. There let him rest, covered with the cobwebs of self-satisfaction, and glorying in the deeds of his ancestry; an effete aristocracy, without patrimony or estate.

Gynæcology has, perhaps, received greater impulse within the past ten years, and made more rapid strides, than any other branch of medicine or surgery, ophthalmology alone excepted.

To any one who has ever devoted any attention to the abnormities of the uterus, and who has so constantly and persistently failed in their alleviation, I offer no excuse for this resumé. To those who have given not much attention to these subjects, and to those who condemn, without investigation, I proffer these remarks, hoping that they will fairly and honestly judge results which experience alone induced me to deduce as I have done.

The subjects of dysmenorrhœa and menorrhagia, either directly or indirectly connected with sterility, involving the comfort, health or life of the patient, is a matter of such importance, that I feel it my duty to present such facts I have concerning them.

Uterine abnormities are generally referable to a certain menstrual period, an abortion, a miscarriage or a delivery; and neoplastic formations consequent thereon, give rise to menorrhagia and dysmenorrhœa, with or without sterility.

Whenever menstruation is healthy, that is, when the flow of blood from the uterus is of normal quantity and quality, and the sizes and axes of the cavities of the neck and body normally preserved, there is never any uterine abnormity; but, an increase or decrease of the sizes of the uterine cavities almays precedes dysmenorrhœa or menorrhagia. The

deduction is, that diminished, painful, or increased menstruation, depend upon some substance foreign to the tissue proper of the uterus or its membranes, and that these pathological phenomena are mechanical causes, frequently remedied by mechanical or surgical interference, and which from the nature of the neoplasm, have rarely been systematically, and with certainty, removed by constitutional treament. True, some such cases have gotten well without surgical treatment—at least, they are so reported;—but their history and diagnosis must be taken *cum grano salis.* It is true also that many cases are not remedied by mechanico-surgical interference, but failures in an operation never detract from its merits. Who would condemn lithotomy because fatal results have taken place in the hands of the most skillful? The honest physician never claims certainty; but he never condemns without investigating! He never fulminates a *pronunciamiento* against uterine secretions without knowing how to use a Sims speculum, or ever having measured the cavity by means of the uterine probe! Yet I know distinguished men, Presidents of State Medical Societies, Editors of Journals, and Professors in Medical Colleges, who *pronounce* with Mexican gusto against all new comers, even if backed by the crowned heads of reason, philosophy and experience.

Ridicule is a formidable weapon; but in the hands of men who are ignorant of what they attempt to destroy, reminds one of the fly and the ox in the fable!

Within the past year it has been my fortune to operate upon forty-two cases for dysmenorrhœa, and four cases for menorrhagia, all of which were dependent upon neoplastic formations.

Case I. Mrs. J., aged forty, consulted me in April, 1866. She had dysmenorrhœa, and had been laboring under it for thirteen years, and had the usual concomitant symptoms of prolonged uterine disorder. A speculum examination revealed a small cervix not more than an inch in length, conical in shape, with an os tincœ not larger than a knitting needle.

There was no leucorrhœa, but shreds of tenacious viscid mucus hung from the os. The neck was hard, unyielding and not at all sensitive. The axis of the uterus normal, but the cavities of the neck and body were strictured, the former almost closed by an interstitial fibroid deposit. The smallest of uterine probes could scarcely be passed. Sims's work on Uterine Surgery had not then appeared, and I had not seen Emmet's *brochures*. Simson's uterotome was not to be obtained; hence the proper instuments were not to be gotten, and although I recognized the fact that an operation was immediately necessary, I was forced to defer it another month, until after the next catamenial period. In the meantime it was very necessary for me to go to Baltimore to attend the meeting of the American Medical Assocation. Upon my return, such instruments as had been ordered in New York, had not reached St. Louis, and I was forced to operate with such as I had. On May 4th the bilateral section of cervix and internal os was made through a Cusco's speculum, by means of a pair of ordinary scissors to divide the cervix, and a *lithotome cachê* for the internal os. The hemorrhage was but slight, easily checked by cold wet sponges. The wound was dressed by a pledget of cotton soaked in glycerine, and a tampon of dry cotton in the vagina. There were no plugs inserted in the cuts, but they were left, as Simson treats his cases. On the fifth day afterward, the wounds were pressed open by means of a block tin sound, and dressed as before; and this procedure continued daily until her next menstrual period, when the flow came on painlessly and quite freely. It is now fifteen months since the operation, and she has had no dysmenorrhœa. The result in this case was favorable.

Case II. Mrs. S., aged thirty, had for eight years been laboring under dysmenorrhœa, the sequence of an abortion four years preceding her consulting me, which was in May, 1866. She had, so her physicians informed her, ulceration of the neck and inflammation of the body of the uterus, and

had been treated by eight or ten medical men within the last four years. Nitrate of silver, caustic potash, potassœ cum calce, acid nitrate of mercury, *et id omne genus*, had been tried, together with unheard of quantities of iodides of potassium and mercury. Hip baths, shower baths, sea baths, etc., had been duly ordered and applied, and all to no avail!

A speculum examination revealed an elongated indurated neck, and a small os lined with a velvety shreddy membrane, not highly colored; the color of the whole neck was of a very light pinkish, rather marbled or streaked with white. The discharge from the os was of the usual ropy, viscid, muco-purulent character. The ordinary Simson's sound could not be introduced, and a very small silver wire uterine probe was passed with some difficulty, as the axis of the uterus was inclined laterally, on a line parallel to one drawn from the left anterior superior spinous process of the ilium to the right ischiactic tuberosity. There were no flexions whatever, and the depth of the cavities of the neck and the body was three inches and a quarter. Such being the condition, an operation was proposed and gladly accepted. Two weeks subsequent to the examination, her menstruation having ceased, and which was excessively painful, the bi-lateral operation was performed as described by Sims. The usual dressings of cotton saturated with glycerine and sesqui-chloride of iron, viz: three parts of glycerine to one of the iron, were applied within the cuts beyond the internal os, and in the cervical incisions, and the whole packed in a cup-shaped pledget of cotton saturated with glycerine, and below which was applied a sufficiency of dry cotton to fill the whole vagina. I am rather disposed to pack too much cotton in the vagina, enough to press upon the bladder and rectum, and by such a tampon I am sure of no subsequent accident from hemorrhage. It is easier to draw off the water twice a day for a week, than to control a secondary hemorrhage, however slight it may be.

On the sixth day after the operation, the dressings and

tampon having been daily applied, the cotton glycerole-iron plugs were cast off by the suppurative process, from within the internal os. The uterine canal was kept open thereafter, until her next menstrual period, by means of the daily introduction of a sound, which was nothing more or less than a block tin bougie, No. 42, French measurement, and which provoked no hemorrhage. The cotton glycerine dressings were also kept up. Eighteen days after the operation, the cotton was slightly stained with blood, which was the first show of the menses. On the following day the flow commenced in earnest, and continued for four days rather copiously, but perfectly free from pain. After the menstrual period had ceased, then commenced that portion of the treatment, which, in my mind, is equally as important as the operation. There is always in dysmenorrhœa a certain amount of endo-cervicitis or endo-metritis, or both, which may or may not have existed prior to the interstitial and inter-cellular fibroid deposit, which constitutes the neoplasm creating the general pathological condition. Whether this follicular disease of the mucous membrane be a sequence or exists before hand, the operation permits us to reach it as readily, as it permits a free egress of the menstrual flux and accumulated acrid or altered secretions. Sometimes the bleeding attending the sections, the divisions of the fibers of the neck and at the internal os, and the drainage induced by the glycerine osmosis are quite sufficient to rouse the torpid absorbents, and the cervico-endo-metritis is cured as well as the mechanical obstruction. However, most frequently such results are not so happily to be obtained, and in this case, notwithstanding there was relief from dysmenorrhœa, and great amelioration of the uterine catarrh, the cure was not complete; hence the treatment, secondary as to time, but of real primary importance, was commenced. There are two great reasons why this lining membrane should be restored to its healthy vigor. The first one is whether the patient be married or unmarried, that unless the follicular disease is

cured, there is liability to a recurrence of the dysmenorrhœa; and leucorrhœa, with its attendant discomforts, is apt to continue; and, secondly, in the married, besides the above, conception is not probable from the fact that the spermatozoa will not live in the acrid fluids of the uterine cavities, and are also liable to be floated down into the vagina, even if they are not destroyed in the uterus. Hence sterility is apparently not overcome, and as a consequence the operation is decried, even if it had been well performed, which is not always the case, and this too is sometimes a reason of failure. Unskillful surgery, negligent therapeutics and unsound pathology, particularly if united in one individual, do more to damn a great principle or a brilliant operation, than aught else; and, because men are not sufficiently apt with the bistoury, or are *lazy* practitioners, or whose prejudices incline them to some favorite hobby of quantitative or qualitative blood changes in all disease, forsooth all operations upon the uterus are humbugs, and Young Physic is on the rampage!! Columbus broke an egg to stand it on end before he convinced the friars. Gallileo was sent to prison because Young Astronomy got on the rampage. Yet Columbus's egg business was very simple and plain when the dullard Monks saw into it and understood it, and Gallileo is honored and revered, notwithstanding fifteen centuries of cloistered learning frowned upon him and ridiculed him. Young Physic rather likes Old Fogyism to smile with derision, but it looks very like a whale, or a weasel, or a sardonic grin! The treatment necessary after these uterine sections consists in the free application of hot water to the cervix, and the destruction of the epithelial coating of the mucous membrane within the cavities, or the whole membrane itself sometimes, as the case may be. For the hot water applications, Emmet advises that a nurse should administer them; but as such can not always be obtained, particularly in private practice, an ordinary tin bucket, holding a gallon or two, with an India rubber tubing, about four feet in

length, and a *straight* vaginal pipe, is all that is necessary; the patient lying on her back, with oil-silk to protect the bed clothing, a bucket to catch the waste water, and the apparatus placed a foot or so above her, can thus, without any inconvenience *bathe* the neck of the uterus *ad libitum*, and without any pain, which frequently follows the use of the syringe, when the usual stooping over a basin is performed. Sims (who is great man, notwithstanding his detractors) first conceived the idea of the use of chromic acid about and in the cavity of the cervix uteri, as an escharotic, and its beneficial action there, induced Emmet to carry it still further up into the cavity of the body for the cure of follicular endo-metritis. In a paper read before the New York Obstetrical Society, Dr. Emmet very graphically described the results of the chromic acid application to the cavity of the uterus, as necessary to the completion of the cure of anteflexion after the sections. A very extended observation permits me to entirely corroborate his views. Nay more, in several hundreds of applications for every variety of uterine catarrh, I can not recall one single instance where the acid has produced any evil results. The method of wiping out the uterus is very simple. The patient is placed in the left lateral semi-prone position, and with an assistant to hold Sims's speculum, (or with my modification without the assistant,) the neck is hooked up by means of a tenaculum, and a small, flat, probe-pointed, flexible, silver wire, having a small bit of cotton wrapped around it, is dipped in warm water, and the cavity is thoroughly cleansed of the fluids, of whatever nature. Another similar *cottoned* wire is then dipped in the solution of chromic acid, (a drachm of the acid to a drachm of water,) and carefully pressed all over the mucous tissue. In this manner the acid does not coagulate the contents, (which might give rise to considerable pain,) and is also brought directly in contact with the diseased surfaces. The neck of the uterus is then surrounded by a wad of cotton, cup-shaped, saturated with glycerine, and

which is permitted to remain twelve or twenty-four hours,) when the hot water applications are vigorously used, at least three or four times a day, until the pellicle—slough is cast off. When there is much endo-cervicitis and endo-metritis, I have occasionally immediately reapplied the acid, but, if not, then the tincture of iodine may be applied in the same manner every third or fourth day, together with the hot water continually until the next menstrual period. Frequently this terminates the treatment, but should there be any more discharge, from the uterus, the acid and iodine are alternately used for a month or so, when, as a general rule, the cure may be said to be complete.

In the case now under consideration, no further treatment was necessary after the second catamenial flow succeeding the operation. This patient conceived a few months after the operation, but aborted with a six months' child, the result of a fall received in the crowd the night of the Lindell fire. She fortunately recovered, and has had no uterine trouble, strange to say, since I last saw her, as above stated. This result, therefore, may be considered as a success.

Case III. Mrs. ———, a widow lady, who had resided in tropical climates for some years, and had aborted four times in the last three years of her residence abroad, returned to America, shattered in health and spirits. She was on a visit to some relatives in St. Louis, when a medical gentleman was called in to see her. Her condition was pitiable. Hysterical catalepsy, or cataleptical hysteria rather, was her usual condition during the menstrual period, brought on evidently by pain of the most excruciating character, coadded to an exaltation of nervous sensibility about the pudenda that bordered on nympho-mania. The usual antispasmodic treatment was tried in vain. Scarification about the neck of the uterus, leeching and caustic applications, as there was some ulceration also, were worse than useless. They were indeed productive of harm. I was requested to see the case, and a digital examination revealed a very

hard cervix, some ante-flexion of the neck, and marked retroversion of the entire organ. Palpation in the hypogastric region, indicated great tenderness over the ovaries, so much so that I was led to suspect ovaritis, or perhaps chronic circumscribed pelvic-cellulitis. A speculum examination and the uterine probe verified the displacement of the organ, and further revealed the usual stricture about the internal os, and in the cavity of the cervix, attendant upon the interstitial and inter-cellular fibroid deposit. Such being the condition of affairs, an operation was advised and accepted. The bi-lateral section was performed on the 27th of July, 1866. Nothing of peculiar interest attended the sections; the usual dressings were applied, and her menstruation came on about the 17th of August, painlessly and without the hysterical spasms. The chromic acid was applied as above described in Case II., and all went on well for several days, when the patient ate heartily of fried potatoes and beefsteak, which produced some little derangement of the alimentary canal, and as this was about the period when cholera was at its worst, the diarrhea produced great alarm, and any quantity of cholera drops, capsicum, laudanum, etc., were poured into her, the result of which was to lock up the offending matter within the intestines, and, as a matter to be expected, dysentery rapidly ensued, of a most aggravating type, and which nearly carried her off. Of course the treatment connected with the uterus had to be abandoned, which, together with the great enteric inflammation during the dysenteric attack, made me fearful that all efforts previously attempted would be fruitless. She mended very slowly, and when the next menstrual period came on, she was much emaciated and prostrated. The flow was ushered in with considerable pain, and slight hysterical phenomena. The ovarian pains and excitement were even greater than before the operation. However, not at all disheartened, I recommenced the special uterine treatment as soon after the period as possible, and to my great satisfac-

tion, discovered that a sound could be passed without much difficulty. The chromic acid and iodine treatment were persisted in, and the frequent passage of the sound kept the cavities open, and the third menstrual period came on without pain or hysteria. The fourth period, which took place in November, was likewise painless and free from hysteria, but some imprudence in diet reinduced her old dysentery, but not in such an aggravated form, and she was scarcely well when the fifth period came on early in December, painless and not hysterical. Just as the menstruation was about to cease, she changed her residence, and to do so had to ride some two or three miles through a fearful rain and sleet storm. She took cold, and had another attack of dysentery, which was quite obstinate. The period in January came on, however, without pain and free from hysteria, and the symptoms of nympho-mania had entirely subsided; there was no leucorrhœa, and the cervix and os looked and felt perfectly well. The February period came on painlessly, no hysteria, and the patient stated that she was well. In fact she had gained about fifteen pounds in flesh, looked well, and save a slight retroversion, I looked upon the uterus as healthy. She left the city then, and I have heard nothing of her since. The result in this case was amelioration, if not cure.

Had I met with this case later, I would not have made the bi-lateral section, but would have cut through the neck, and through the knuckling at the retroflexion about the internal os, antero-posteriorly. But as this was only the third operation, I was not so familiar then as now with certain facts gleaned from experience. Why these antero-posterior sections should have been made, will be explained further on.

Case IV. Mrs. R., aged thirty-two, suffering from acquired sterility, the result of unmistakable uterine trouble, was seen for the first time in July, 1866. Her subjective symptoms consisted in the usual lumbar and crural pains, nausea, head-

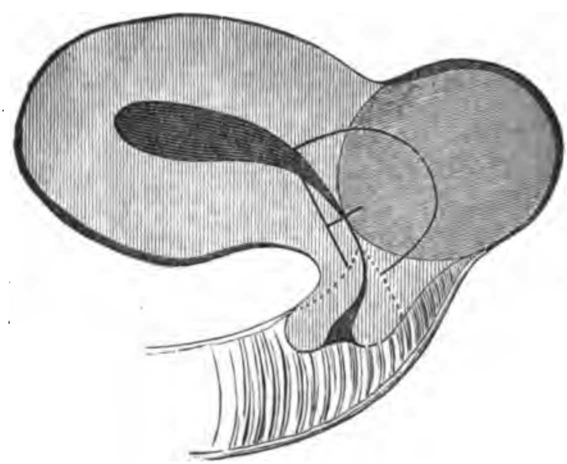
ache, an irritability of the nervous system provocative of slow, febrile action, constant heat of the soles of the feet and palms of the hands. She had been almost bedridden for about fourteen months, (absolutely so for eight months,) and strange to say, had become very fat. Menstruation had been absent nearly a year, but instead, there was a monthly leucorrhœa of great profuseness; the leucorrhœa, however, was constant, but very much increased at the period when the menses were expected. This phenomenon was the more remarkable from the fact that it previously had been attended with great pain, and only at this period. The objective symptoms, revealed by the touch, consisted in an elongated neck, tapering *toward*, not from, the vagino-uterine junction, which somewhat resembled a mushroom, and which, in contradistinction to the conoid-shaped neck of the other cases, I call the *mushroom neck*. The term *conoid neck*, given by Sims and Emmet, is scarcely expressive of the exact condition of such cases as were numbers one, two and three, and to properly define the appearance of the os and cervix, I have called it the *glans neck*, (from the great smallness of the os, and the tapering appearance of the cervix) on account of its resemblance to the glans penis of a youth. To resume; the finger in this case detected a mushroom neck, with rather a small os, anteflexion of the body of the uterus, and a small, fibroid tumor, about the size of a walnut, just behind the internal os, and projecting into the Douglas cul-de-sac, which could be very well traced by the finger of the other hand in the rectum. A speculum examination and the uterine probe verified the digital one. Palpation in the hypogastric region revealed nothing owing the to adipose condition of the abdominal walls.

Here was a case of anteflexion, the result of the presence of a fibroid tumor in the posterior wall of the cervix and body, and which pressing upon the rectum posteriorly bent the yielding neck anteriorly. How long this tumor had existed was a matter of doubt, but the dysmenorrhœa and leu-

corrhœa had been present for years, and constipation of the bowels was the habitual condition. Now, what was to be done in such a case? She had been subjected to the usual course of cauterization through round glass, horn, silver, wooden and plated specula. Bi-valve, quadri-valve and all other valvular instruments had been used. One physician had even a gold-rimmed ivory instrument to torture this poor patient, all to no avail. Not that I object to so many having been employed, but fatal results from too many physicians are recorded in the New Testament, and I feared perhaps that when I saw her I might have been the last, as she had been treated too much, and all to her detriment. In fact this was one of the type cases that old fogyism likes to pet; they are to Dr. Slow, like Tam O'Shanter's wife, who nursed her wrath to keep it warm. "Old fogies" don't know how to treat such cases; won't investigate, and then abuse Sims because he has. An operation in this case was advised (and explained to the patient) for the following reasons: The tumor evidently was the cause of the entire trouble, and sections about the neck of the uterus sometimes produce absorption of these tumors; furthermore, as it was small, and quite within reach, possibly enucleation might be attempted, and the cavities of the neck and body might be reached after the sections, and the endocervicitis and metritis treated, and finally menstruation might be superinduced.

The patient consented to the operation, which was performed on the 29th of the July, 1866. With considerable difficulty chloroformation was effected, when the patient was placed in the left lateral, semi-prone position, and Sims's speculum introduced, and given to an assistant. The anterior lip of the cervix was hooked up by a tenaculum, and the intravaginal portion rapidly divided on either side with the scissors The bleeding was but slight. A block tin sound was then introduced into the cavity of the body, and both sides of the internal os divided to a depth of about a

line and a half each. The index finger was then pushed into the cuts, but from the presence of the tumor, could not pass within. I then set the blade of the uterotome at right angles to the shank, and divided the knuckling at the seat of flexion, which permitted the introduction of the finger within the cavity, when the shape and size of the tumor were well defined. Now arose the question as to the disposition of the tumor; however, I thought I would make the effort toward enucleation, and consequently swept the blade of the knife through the mucous membrane covering it, and passed even into its substance; but as it was so firmly im-



[Anteflexion produced by a fibroid tumor in the poster wall of the neck and body of the uterus. Tke dotted lines indicate the sections by the scissors; the continuous lines represent the sections of the uterotome—reduced ½ in size.]

bedded in the uterine tissue, it coud not be moved. Possibly, I thought, it might be squeezed out into the cavity from encapsulization, or it might take on *eremacausis* according to the method of Atlee, of Philadelphia, or it might be absorbed; consequently further procedure was abandoned, and the usual glycerole-iron cotton dressings made, and the vagina well tamponed. The hemorrhage throughout was but slight. The patient was then given an opiate, put to bed, and passed a comfortable night. The urine was drawn off twice during the following day. No fever whatever super-

vened until about the fifth day, when the plugs within the cuts were cast off by the suppurative process, when considerable tenderness and soreness were experienced in the hypogastric region. Minute doses of calomel, with opium in larger ones, ($\frac{1}{2}$ grain of calomel, and one grain of opium,) every two hours, were prescribed, and after about thirty-six hours the pulse came down from 110 to 80 per minute, when the medicines were discontinued. There was no more tenderness or fever, and on the twelfth day after the operation, a Simson's sound was passed without any dfficulty. No special examination was made in reference to the tumor, lest too much manipulation might induce untoward results; but the length of the cavities was reduced to $2\frac{1}{8}$ from $3\frac{3}{4}$ inches. For two weeks afterward the parts were constantly kept soaked in the glycerole-cotton. At the end of which, however, I introduced the finger into the rectum, and much to my astonishment, found that the tumor was not one-fourth of its original size, and a further exploration per vaginam and by the sound indicated that the axis of the uterus was nearly normal, and the anteflexion almost imperceptible. The usual chromic acid and iodine treatment was then commenced, and persisted in very much to the alleviation of the leucorrhœa, when the patient was compelled from certain domestic afflictions to leave her place of residence. She had, however, been walking about, attending to her household duties, for more than five weeks. I saw nothing more of her. However, on this very day, August 10th, 1867, I accidentally met her husband on the street, and he informed me that she was quite well, free from leucorrhœa, having no pains, but had never menstruated.

The result in this case certainly was most gratifying, and can without doubt be classed among the successful issues following surgical interference in the treatment of uterine abnormity. There was, indeed, no dysmenorrhœa, but there existed an equally severe complaint, which was *painful utorrhœa*, with its concomitant endo-cervicitis and endo-metritis.

[To be Continued.]

III.—Foreign Bodies in Air Passages—A New Method of Removal. By John McDowell, M.D., Demonstrator of Anatomy in the St. Louis Medical College.

One of the most distressing and dangerous accidents encountered by the surgeon, is the introduction of foreign bodies in the air passages. The symptoms are usually appalling to the bystander, and distressingly painful and dangerous to the patient; particularly if immediate relief be not obtained. In fact, death is always imminent, and generally comes on sooner or latter if the cause be not removed.

The symptoms vary somewhat in detail, but generally in most cases are alike in their gravity and suddenness; consisting of convulsive cough just at the moment of passage through the larynx, followed by great dyspnœa, increasing to impending suffocation, if the foreign body has not passed beyond the cricoid cartilage; should it, however, have passed beyond that point; the dyspnœa is paroxysmal, taking place when the intruding substance impinges upon the lower margins of the vocal chords, during the respiratory act. Sometimes when this foreign body is very large, or from some peculiar shape or roughness, it does not pass through the aperture of the glottis, but is lodged in the ventricles of the larynx, death may take place almost instantaneously from suffocation, either mechanically by the non entrance of air into the obstructed tubes, or by tonic spasm of the muscles of the larynx. During the paroxysm, violent convulsive struggles for breath frequently supervene, and are fearful to behold. The sufferer is in dread of instant dissolution, and the bystanders are almost paralyzed with fear. The surgeon, under ordinary circumstances stout-hearted, is himself appalled and unnerved in this terrible crisis. Here, all of one's self command is called into play, for upon the skill and nerve of the medical man, depends the life of the patient.

Every conceivable form of foreign body is sometimes found in the air-passages, in fact, anything that is small enough to slip through the laryngeal opening, from a bead, to a tin

whistle, have been known to find their way into the trachea. The accident is most common with children, (though adults sometimes suffer from it,) because they have an irresistable desire to put everything possible into the mouth, and also, from an uneducated condition of the automatic functions of the nerves which supply the opening of the larynx, reflex-action is not sufficiently powerful to reject foreign material. The more common intruders within the sanctuary of the air passages, are grains of corn, beans, buttons, pebbles, bits of wood, etc., etc. One, however, need not be surprised to find anything there.

The size, shape, kind, and other physical conditions must be taken into consideration, and the length of time ensuing upon their introduction borne in mind, with regard to the means used for the relief of the patient. Certain bodies are more readily extracted or expelled, than are others; either from their shape and size, or from the situation in which they be impacted. Occasionally, from a peculiarity of size, shape or position, foreign bodies are not to be gotten rid of by means of the surgeon's art; as, when a small, rough, uneven one, may have found its way to a branch of the smaller bronchial tubes and there impacted. We must wait the ulcerative or suppurative process for its removal—art is impotent to do it. Although nature sometimes succeeds in this way, yet still, in a large majority of cases, the remedial process is worse than the original cause. Again, any sharp pointed body, such as a needle, pin, or tack ,which has punctured and passed the walls of the larynx or trachea, great trouble may be anticipated in its removal; in fact, it is almost an impossibility. Some objects produce more irritation of the mucous surfaces than do others: some are very prone to absorb moisture and thereby greatly increase in bulk, such as corn, beans, pease, soft bits of wood, etc., and if allowed to remain until they swell, offer insuperable obstacles to egress. Hence, aside from pain to be alleviated, other grave causes urge the surgeon to immediate action.

Most bodies surreptitiously finding their way into the air passages, are spontaneously ejected by the reflex action set up by irritation, and conveyed to the muscles of the neck and trunk. Often, however, these bodies are not expelled, and art intervenes. Art sometimes fails. Sometimes when nature and art both fail to alleviate, the irritability and dyspaœa may wear off, the intensity of the symptoms disappear, and the patient may have ceased to think of the trouble, when it is coughed up most unexpectedly; but most frequently all the continuous irritation leads to inflamation and death, if the patient do not previously succumb to one of the violent paroxysmal attacks of dyspnœa.

It is not always easy to say whether there be really a foreign body or not in the air passages. Surgeons of known ability have been deceived, and have as a consequence committed grievous errors. Thus, there may have been a substance present at one time, but it may have been ejected without attracting the attention of the attendants, and yet the *sensation* of it may remain for a considerable time. Again, ulceration of the larynx sometimes provokes spasm of the muscles, which simulates the reflex action produced by the presence of foreign bodies. Irritation produced by food or a oreign body lodged in the œsophagus, may produce nearly all of the symptoms above mentioned. Hence it behooves the surgeon to look well into all the circumstances of each case lest he should be led by false symptoms into the performance of an operation when none is required. Consequently everything must be rapidly surveyed; as the urgency of the case demands immediate action.

I do not intend the forgoing remarks, to cover the entire extent of the subject of foreign bodies in the air passages, but merely to indicate the generalities. I desire to call attention to the dangers of the accident, preparatory to the description of a new and simple procedure, by which, I believe a large number of cases may be relieved which would otherwise require an operation. One of the best methods of relief

is to put the patient partially under the influence of chloroform, and while thus relaxed, a convulsive action of the expiratory muscles is produced by irritation of the mucous membrane of the fauces, and Schneiderian membrane. At the same time strong pressure is applied to the chest. Frequently this operation is successful, and the foreign body unexpectedly slips by those now dozing sentinels, the vocal cords. Numerous laryngeal and tracheal forcers, for the extraction of bodies, have been invented, and sometimes successfully used, by both European and American surgeons.

Among the latter, I would mention the instrument invented by Prof. J. T. Hodgen, of the St. Louis Medical College: being a long, curved forceps, introduced closed into the glottis, and then expanded, thereby enlarging and changing the shape of that opening, thus removing the obstruction and allowing the body to pass out. Prof. H. also devised a forceps for the purpose of pulling the tongue farwards, and by means of traction on the *frænum epiglottidis*, that cartilage is placed and kept in a vertical position, much faciliating the introduction of the former instrument, and also giving free exit to the foreign body.

Inversion of the patient is the best means of, and the one usually employed to assist in the ejection of bodies from the air passages.

By this position of the patient, several things are gained; viz., one gets the benefit of gravity; and the weight of the abdominal viscera press upon the diaphragm promoting the rapid expulsion of air from the lungs, by which the foreign body is forced through the aperture of the larynx.

While in the inverted position, the patient, if old enough to know what is meant, should be made to take a long, deep inspiration, and immediately the chest should be struck sharply, or compressed firmly and quickly by a strong man. The new procedure which I have to propose, is to be applied at the same time, and in connection with the inversion of the body. It consists simply in the widening of the

aperture of the glottis, by manipulation. The head of the patient is to be thrown back, so that the anterior convexity of the cervical region is increased, forming a support for the cricoid cartilage. Firm pressure is then to be made by the surgeon on the projecting angle of the thyroid cartilage or *pomum Adami.*

The result of these operations is the relaxation of the *chordæ vocales* and the widening of the space through which the body has to pass.

By reference to the anatomy of the larynx, the modus-operandi will readily be perceived. As before stated, the chief obstacles to the free passage of any body in or out of the air passages, is in the peculiar shape of the aperture of the glottis, which is a narrow fissure between the chordœ vocales or inferior thyro-arytenoid ligaments; it is a little broader behind than in front and varies from $\frac{3}{4}$ to 1 inch in length.

The vocal chords are two small bands of yellow elastic fibrous tissue, attached in front to the lower portion of the receding angle of the thyroid cartilage, from that point they diverge and passing backwards are attached to the anterior angles of the arytenoid cartilages. Except in old age, when the cartilages become ossified, they are very elastic and yield easily to pressure. Observation of the larynx in the dissecting room gave me the first idea of the plan; and after trying it on the cadaver, and finding it worked well there I determined to try it on a living subject at the first opportunity. I have tried it in two cases, and succeeded satisfactorily in both of them, after the method by inversion alone had failed.

Case I. was that of a little girl 4 or 5 years old, who was playing with some shot in her mouth, when the sudden closing of a door startled her; and, in her fright, one of them (a swan shot) dropped into her larynx, and produced all the usual symptoms of such an accident. Fortunately it was not more than ten minutes from the occurrence of the

accident before I saw her. The mother told me what she supposed to be the matter, and I at once determined to try my plan. I had the brother to grasp the child by the ankles, and invert its body, and I compressed the chest with force, but the foreign body would not come. I again had the child inverted, and whilst the mother made sudden pressure on the chest, I compressed the larynx as described above, and without the assistance of a convulsive cough even, the shot dropped on the floor and the little sufferer was relieved.

Case II. was also that of a child, a little girl aged ten years, who had gotton a grain of pop-corn into her trachea, followed by the most distressing dyspnœa. She had been suffering several hours when. I saw her inversion, had been tried and failed. I directed her to take a long, deep inspiration and then I made the pressure on the thyroid, while the chest was suddenly and forcibly compressed by means of a broad bandage. The plan was successful, for the corn came suddenly into the mouth. These are all the cases in which I have had an opportunity to try the plan; in these it proved successful, and I hope others may give it a fair trial.

IV.—Gastritis or Pneumonia?—Report of case by Wm. H. Cooper, M.D.

Messrs. Editors:—

I avail myself of the opportunity of reporting the following case, which, I think, presents features sufficiently unusual to justify its publication.

I was called on April 23d, at 4 a. m. to see Mr. C., aged 37 years, a large, strong man, with a tendency to corpulency. I received the following history of the case. His occupation was that of a steamboatman, and, as is very generally the custom among this class of people, he was in the habit of

drinking more or less every day, but not to any great excess. He had been in the habit of sleeping every afternoon and had so done on the day preceding that on which I saw him. Immediately after his siesta he felt a chilly sensation, but not amounting to a decided chill. He then drank some whisky, thinking that it would afford him relief. In a very short time after taking the whisky, he became nauseated, and the nausea continued to increase until active and continuous vomiting set in. I saw him at 4 o'clock a.m. on the 23d.. I found him upon his back, his countenance being expressive of great anxiety, pulse 140 per minute and small, hot skin, tongue coated with short white fur with red tip and margin, great thirst with burning sensation in the stomach, and tenderness upon pressure over the epigastrium.

I ordered him to be cupped freely on the stomach, and ¼ grain of Acetate of Morphia to be given every hour, with a liberal supply of pounded ice, until the stomach was quieted. I saw him again at 8 o'clock a. m., and was much astonished at the marked and seemingly favorable change which had taken place in so short a time. He had not vomited since I had last seen him, and had had but little nauséa, the tongue was not less red and inclined to be moist, the countenance less pinched, and the pulse softer, but still as frequent as before. The patient thought himself so much better that he declined any further attendance on my part. At 10 o'clock I was requested to call at his house. His bowels not having been moved, he wished to see me on that account. I called about 12 o'clock and found him in a very comfortable condition, having slept for about an hour, and feeling much refreshed. He however remarked that within the last fifteen minutes he had felt a stich or pain in his right chest. I also noticed that he coughed slightly, the first time since his illness. I placed my ear to the right side of the chest and was astonished to find fine crepitation all over the right lung, with dullness on percussion.

I ordered him a mercurial cathartic, with a large blister to the chest. At 7 p. m. I found him expectorating a large quantity of black blood, mixed with some mucus; great dyspnœa, pulse much more frequent and of less volume, and extremities inclined to be cold. I ordered ammonia, brandy and beef tea, with sinapisms to the extremities and jugs of hot water to the feet.

At 7 a. m. on the 24th, the patient was no better, the expectoration was the same, increased dyspnœa, pulse scarcely perceptible at the wrist. The blister had not filled. The mental faculties were still clear, the patient manifesting a great desire to live.

This general failing of the powers of life continued up to 4 p. m., when the patient died.

This patient never manifested any lung trouble during the gastric disturbance. After the pneumonia showed itself, the gastric symptoms subsided, notwithstanding the brandy, ammonia, quinia and beef-tea which were freely administered.

Query: did this patient have gastritis? I am inclined to think he did not, but that the disease was pneumonia with a *dislocated* reflex action to the stomach, simulating gastritis. This having been relieved by the cupping, ice, and the anodyne influence of the morphia, the lung trouble manifested itself by the proper signs.

Yours truly,

W. H. COOPER, M.D.

St. Louis, August 13*th*, 1867.

WHAT IS LIFE?

First Lecture on Pathological Anatomy. Delivered on the 16th of August, 1867, to the Medical Profession of St. Louis, by A. Hammer, M.D., Prof. of Surgery, Ophthalmology and Pathological Anatomy in the Humboldt Medical College of St. Louis.

Gentlemen Colleagues—

I tender you my most sincere thanks for the great honor which you have conferred upon me, and for the confidence which you have placed in me, in requesting me to deliver a course of lectures upon Pathological Anatomy. Being justly conscious of the difficulty of the task which I have undertaken, to treat of a subject of such great importance, and intrinsic difficulties, before so learned a body, I hope you will grant me all due indulgence—yet I shall endeavor, to the best of my ability, to present the subject in such a light as to make it not only useful but likewise attractive. I have nothing new to offer you. I cannot claim any originality in what I shall tell you (excepting hypotheses and illustrations of facts by my own observations), but I will try to make you acquainted with the present advanced state of knowledge in the rich and fertile field.

While duly appreciating the high honor bestowed upon me, I cannot but remark that, by having solicited these lectures, you honor yourselves more than me, and I feel consequently the more proud, for you unmistakably manifest thereby your precise appreciation of this discipline. You clearly speak out, that medicine, if not based upon this solid ground, is an Air-Castle, and you undoubtedly prove thereby, that the Medical Profession of St. Louis is not only not behind the Profession of this Continent, but ranks with the best in the entire country.

The first and last object of medicine is Healing. All branches of the medical science culminate in the *ars medendi* (healing art). The idea of Healing presumes a subject or

which it can be practised. This is what we call disease. Here, right in the begining of our discussion, we meet with the first obstacle, and by no means the smallest one. You will with propriety ask me "what is disease?" The task, gentlemen, to define *correctly* and *exhaustingly*, is one of the most difficult in all and every one of the different departments of Science, and still more so in the so called Empirical or natural sciences. You observe that I use the phrase "so called Empirical," and for this reason, that every branch of science, without any exception, is but Empirical, as I shall show hereafter. I might, in attempting to define Disease, with apparent propriety say "Disease is the negation of Health." Here is the second obstacle, for it is very natural to ask "What is Health?" Health and Disease are abstract ideas, only used for convenience sake, signifying collectively a series of manifestations on the part of a certain amount of matter constituting an "organism." Now, you see, we wander still farther in the labyrinth of definitions. Matter —Organism. Are Matter and Organism identical or do they differ, and if so, wherein is the difference? Following up this backward course, step by step, we arrive finally at the idea of Life, the greatest of all the obstacles in the minds of Naturalists. I, for my part, cannot see why the nature and essence of Life should be more difficult to be understood than a great many other things. This assertion may seem paradoxical and even highly immodest; but I hope to substantiate it and to free *myself from the reproach of annoyance.*

Up to this moment I have pursued a retrograde course, in order to show you that, while attempting to treat on pathological anatomy, it is first of all indispensable that certain principles should be established, certain starting points be agreed upon, in order to pursue in a systematic and philosophic manner, the tract of investigation upon which we have entered. These starting points must be first agreed upon, if we desire that the discussion should turn out to our natural benefit.

I believe that we can best begin this investigation by first inquiring into the nature of the human organism—What it is? It is a microcosm on the one side and a macrocosm on the other, (neither word to be used in the sense of the naturo-philosophic school), a microcosm in relation to the universe and a macrocosm in relation to the simplest *form of life, the Cell.* The same laws by which the Universe is governed, govern, on the one hand, the human Organism, and, on the other, the simple Cell. The same *so-called* (I intentionally say "so called,") forces which become manifest in the incessant motions of the Universe, manifest themselves in an exactly similar manner in the Human Organism and in the simple Cells. How did we acquire the knowledge? In the simplest and only possible manner, the Empiric. What man knows, he knows only and cannot know otherwise, than by impressions which by some cause or other are produced by changes in certain structures of his body. The Human Organism is accessable to such impressions mainly by means of certain organs located on the surface, the senses, and these impressions are carried by those to certain other organs located in the interior, the central apparatus of the nervous system, causing there material changes corresponding to the impressions made upon the senses. Our idea therefore of "seeing an object" is nothing more or less than a change of a certain kind made upon the substance of the nervous centres. Using our senses is therefore identical with "feeling ourselves." This principle is highly important, because bearing upon the most intricate problems of philosophy. The next conclusion legitimately to be drawn from this is, that what cannot reach our senses and produce changes of our nervous apparatus, does not in fact exist for us, as we cannot become aware of it. *Everything, the whole world, exists for us only within ourselves.* The nervous center of the body, the Brain, is the only arena of scientific researches the surface of the brain forms the boundaries of the arena, and

every step transgressing those boundaries constitutes "*Transcendentalism.*"

The faculty of Perception, as I might call it (reception of impressions) is already existing in the new-born child, but in a low state of development, and subject to gradual and regularly progressing improvement. In course of time, in virtue of the peculiar arrangement of structure in the nervous centers, the process of "Thinking" is called into existence. Man begins now to compare the various impressions with one another, and arrives at the point of discrimination. Consciousness is the result.

It would exceed the limits of these lectures, should I enter into the minute analysis of this subject and try to prove everything by facts deduced from Anatomy, Physiology and Psychology. I can dispense with it the more, as I did, seventeen years ago, read an essay before the Medical Society of St. Louis on *Free Will*, in which I treated at large, in an Anatomico-physiological manner, of the functions of the brain.* All I wish to do for the present is to define my position in aphoristical outlines, as there will be sufficient opportunity during these lectures to refer occasionally to one and another of these points.

Consciousness, implying the distinct idea of our individual existence in contradistinction to the existence of many other things, which may be either apparently alike or akin to ourselves, or may materially differ from us, is the very source of all knowledge which we possess or may acquire of every thing that is without ourselves, surrounding us; in one word, of the whole world. In this way we have learned that every thing is composed of, or consists in, something which we call *substance* or *matter*; further, that matter is the substratum upon which we observe certain manifestations, which we call Forces. We have learned that matter appears

* It is remarkable how times change. At the same time of reading the above essay, a clergyman of the Methodist denomination, was by certain members of the Society invited to refute my arguments, which in reality he attempted to do. At this present time I feel quite sure of never meeting an opponent of a similar kind; for the facts of science are proof against the assaults of mere faith.

under different forms, acted upon by different forces, and so we have arrived at the classification of all matter into brute, inanimate or inorganic, and into living, animate or organic matter. This classification, though not objectionable in itself, has given rise to the everlasting contest among the naturalists, beginning with the first normally organized brain and not being ended at the present; the contest regarding the simple physical forces acting upon the brute matter, on the one hand, and the Vital Force acting upon the living matter, superintending and directing the various phases of its metamorphosis, on the other. The numerous theories of life, as we find them on the record of medical and philosophical history, are owing to this contest, and the list of life theories is not yet ended. The great error committed by so many eminent naturalists and philosophers is, in my opinion, on account of this being started from a false basis, thinking that because the processes, taking place in inorganic matter show really striking differences from those taking place in organic matter, therefore they place the the two in direct opposition instead of considering them to be co-ordinate. Preconceived ideas, degenerating into indelible prejudices; looseness of observation; lack of positive knowledge, so very indispensable prior to generalizing; human pride and arrogance, culminating in the wish to be better than the rest of the world, have frequently blinded the eyes of men, and have induced them unconsciously to violate all rules of logical reasoning.

Before entering upon the subject of life, I must dwell for a while upon matter and force. What is matter and what is force? If what has been said above be true, that the changes produced in the nervous centres are the only source of all our knowledge, then nothing appears to be easier than to answer these questions; all we need to do is to watch those changes and to truthfully express them in words. Asking my brain, I receive this answer: We do not know matter as such, but only as it manifests itself by

a force, (quality or property,) and we do not know force as such, because nothing can strike our senses but matter. Consequently matter and force are inseparable, identical and at the same time indelible. Now, I ask any one whether this answer is correct or not? Is it a truthful translation of the mechanical changes in the nervous centres? Can any one conceive of matter being acted upon by something not matter? No; he can not, because he can conceive only in accordance with the structure of the brain, which is governed by inexorable laws. When, thirty years ago, I attended my first course of lectures on natural philosophy and chemistry, at a time when we knew by far less about forces than we do now, my mind could not recognize the existence of forces independent of matter as a separate entity; such an idea was rebellious to the process of thinking in my brain.

This question is beyond doubt settled now, particularly since the glorious discoveries of Helmhotz, Meier, Grove and others, concerning the correlation of forces. The fact that one force can, at will, be transformed into another, and the equivalent of the new force be determined in advance with mathematical certanity, in my opinion constitutes a new era in the History of Natural Sciences. The correlation of forces will have the same bearing toward future progress as Schwaun's discovery of the animal cell. And upon the future development of both will rest the final solution of the highest problems of biology.

Small causes are frequently followed by great results. This truth is splendidly illustrated by the word "force." This word caused a great deal of mischief in scientific researches, because implying the idea of antagonism to matter. It would have been of infinite advantage if the word had never been introduced into scientific language. I can not help being reminded of Goëthe's words:

> "With words can one dispute most featly,
> With words build up a system neatly, &c.

As I have shown above, there is no such thing as "force."

What we call by this name is a quality or property of matter, inherent to, and inseparable from it; nay, it is matter itself in a certain condition. As soon as the condition of matter becomes changed, the matter will appear under other forms, and manifest other properties or qualities. We possess the means, in a great many instances, of changing the conditions of matter at will, and thus we are able to change its properties, i. e., we transform one "force" into another. I do not propose to eliminate this word from scientific language, for this would be very inconvenient. It suffices us to know what is meant by it. Three hundred years have elapsed since Gallileo's death, and we still speak of sunrise and sunset, though nobody believes it to be true; and therefore there is no harm in retaining it.

The next conclusion is, that as there is no force, there are no forces, and the so-called physical or mechanical forces, gravitation, electricity, adhesion, cohesion, light, heat, magnetism, elasticity, affinity, etc., are merely the exponents of the variation of the conditions of matter. To use the word "force," we may then say that there is but one force which under certain conditions assumes the forms of a number of different forces. I believe that no one will object to this train of reasoning and its results. But there now presents itself another very important question, viz: What is it that causes the production of force; or what is the ultimate reason for the change taking place in matter? I mean now only the physical forces. This question is not so much out of place as it seems to be at first sight. Those who so very emphatically and authoritatively proclaim the life-force to be something diametrically* opposed to the common or physical forces, seem to be possessed of the conviction and belief that they understand the physical forces in their inmost nature and essence. This is a lamentable mistake. Who can tell me the exact change in a piece of iron, which, after some

* Some still, to-day, attribute to vital force the capital office of holding the physical forces in the organism in check, and of counteracting their brute ravages. (The good and the evil spirit.)

slight manipulation, becomes magnetic? Who can tell me what is chemical affinity, or explain the ultimate cause of changes taking place in bodies inducing the manifestations of chemical action? I believe no one! We can change the conditions of matter, and thereby produce new phenomena, but the intrinsic process generating the new phenomena remains unrevealed. It is, therefore, absurd to place one force, which we do not understand, in direct antagonism to other forces which we imagine we comprehend, while we know just as little of the latter as of the former. There is one point in connection with the forces to which I desire to direct your attention in particular; that is, that all physical forces, whether they appear under the form of light or heat, gravitation or cohesion, electricity or chemical affinity, or even under the form of *life*, have *one common feature*, and that is *Motion*. Motion is a *universal phenomenon*, and must consequently be looked upon, if I may say so, as the matrix of all other forces. I am as well aware as you may be that we can not explain to mathemetical precision what we are aiming at. But this much is true, that we thereby have gained a general solid starting point, securing us greater safety in our investigations than we could have expected by starting from any other.

With these few remarks upon physical forces, I will now more closely approach the main subject, the Force or Forces which make their appearance in living or organized matter. You will very naturally ask me "What is life?" This is easily asked, but not easily answered. I unhesitatingly declare that the present state of science does not enable us to give an exhaustive definition.

Imitating the example of a gentleman of this city, who, being asked "What is polarized light?" gave the unanswerable reply, "Polarized light is—polarized light!" I might tell you "Life is—life!" Such an answer would contain little edification, and still less philosophy; and yet there are men who enjoy high scientific reputations, to some extent well-

deserved, who present new theories of life which scarcely amount to more than "life is life." Among the latest of these theories, offered with a great deal of ostentation and pretention, sometimes under the garb of modesty, there is one presented by Mr. Beale, of England, which attracts our attention by its peculiar novelty. It has seldom been our fortune to meet with as much inconsistency and self-conceitedness, combined with the utmost assumption of infallibility, as we find in Beale's lectures on the "Structures and Growth of the Tissues," and on "Life," London, 1865, and in his "Physiology of Man," London, 1866. I say that his views attract our attention, because he pretends to start from the same point that we do, and yet arrives at the opposite conclusion. Beale is a man of great reputation, and real merit; he is a good observer, and a hard worker; but here his merit ends. Generalization necessarily presumes the greatest possible store of knowledge. Beale is a living illustration of the fact that the vastest amount of knowledge is not the only requisite to generalization. A little more is needed, and that is what he does not possess. But let us see what he says.

After a furious, merciless, sarcastic and sometimes ungenerous crusade against all who commence the study of nature, starting from the only source of knowledge, the Senses; and after a pitiable attempt to ridicule and denounce every thing that savors in the least of materialism, he proceeds to review a number of life theories, commencing with that of Aristotle, and ending with that of Prout, and makes the following remarks:

"The hypotheses of Aristotle, Müller, and Prout, and the earlier of those proposed by Harvey, seem all alike; they assume that organization and life are directed and controlled by an Entity, or Power, "endowed with a faculty litile short of intelligence," the psuchai of Aristotle, the animating principle of Harvey, the organic force of Müller, and the organic agent of Prout. What the mechanism may be by which this entity acts, they do not determine; but it is evidently such

as bears no analogy to any known natural agency. Its existence is independent of the organism, for it has directed both the organizing process and the living actions of the being. Whence then is it derived? According to Müller, from the parent, for it exists in the germ,—it derives its powers from the same source, and its pedigree may therefore be traced to the first created individual of each species of animal or plant. Are we to conclude, then, that organic agents generate organic agents, and transmit their powers to their offspring? Or must we assume, that, for each newly generated animal or plant, a special organic agent is deputed 'to control and direct' its organization, development and growth?"

After dwelling somewhat upon the theories of Hunter and Abernethy, he winds up by saying:

"On the whole, we may conclude, then, that the theory which attributes the phenomena occurring in living organisms to the action of physical and chemical forces alone, rests upon no secure foundation, and is indeed controverted by important facts, and that the opposite doctrine, which supposes the existence of a *materia vitæ*, or of a *subtle organic agent*, possessing powers little short of reason, is equally untenable.

"We have seen that the phenomena usually termed vital really comprise two distinct classes of actions—actions purely *physical and chemical*, and actions purely *vital*.

"The truly vital actions which have been alluded to can only be accounted for by attributing them to the influence of some peculiar power totally distinct in its nature from any form of ordinary force."

The poor Harvey, who was so audacious as to draw conclusions from his own observations, and to form a theory, viz: "That, as during the development of the chick in ovo, the blood is formed and moved before any vessel or any organ of motion exists; so in it and from it originate not only motion and pulsation, but animal temperature, the vital spirit, and even the principle of life itself,"—receives the most castigation, for Beale criticises Harvey's doctrine with the following words (page 25): "So completely biased were the views of this illustrious man by his exaggerated notions repecting the value and properties of the blood." This sen-

tence of Beale's is well set, but its application will be by far more telling if we substitute for the name of "Harvey" that of "Beale," and for the word "blood," the words "immaterial agency," thus illustrating the truth of the Scriptural expression of the "mote and the beam." Mr. Beale thinks he has discovered the philosopher's stone by having ascertained certain facts, which he regards as totally new, and presents as the basis of a new theory.

With him all organic matter is either living or dead—the dead having been living, but being dead once, can never be resuscitated. He calls the living organic matter the "germinal matter," and the dead matter "the formed material." His germinal matter can only be formed by germinal matter; it is formless and colorless, containing microscopic spherules* of various sizes, the larger ones being made of smaller ones, and these again of still smaller, ad infinitum, the whole constituting a colloid mass. This germinal matter is endowed with two marvelous principles. First, The spherules move not centripetally, as minute, inorganic particles do, which constitutes molecular motion, but centrifugally, in a manner totally opposed to physical laws. Second, An ammoniacal solution of carmine colors the germinal matter red, and does not at all affect the formed material.† All the substances necessary for the proliferation or growth of the germinal matter, the pabulum, is dead matter, and this dead matter becomes living matter by the mere contact with the germinal matter, in order to become dead matter again immediately, under the form of "formed material." This process of transforming dead matter into living, and of killing the living matter again at once, is, in Beale's eyes, so totally different from every thing else in nature, that it is impossible to explain it unless by calling in a force, or power, or

* I thought that a spherule was a form.

† Strange. In his advice as to preparing microscopic specimens, he cautions most emphatically against too much of the color being used for fear of spoiling the preparation, as the dead formed material would also be colored, and hide the germinal matter.

agency, totally different from any which we are hitherto acquainted with—*his immaterial agency.*

This is the celebrated theory of Beale. But before I proceed to criticise, I will again quote from his lectures. On page 206 he says:

"Many facts I have advanced show conclusively that there is a general tendency in the particles of every mass of living matter to move in a direction from a center, while the pabulum moves toward the center. Suppose we assume that the particles of which a moving mass is composed consist of particles every one of which exhibits the same tendency to move from centers. We know that in a mass of living matter are spherical particles varying much in size, and it seems not impossible that the varying intensity of invisible movements in the different component particles may cause the movements which we observe in the mass of germinal matter. The particles being all free to move in fluid, some would move in advance of others. Nor is it possible to conceive that a mass constituted as above described, would ever come into a state of equilibrium, because every particle is undergoing change, and at a different rate at every moment of its existence. New particles are being formed; old ones are dying, and being resolved into new materials. You ask me what causes these particles to move thus? I can only answer, LIFE."

And again, on page 216, he says:

"I am quite unable to define the nature of the supposed vital power, but think I have shown that the phenomena, which may be observed by all, can not be explained, unless they are regarded as resulting from the interest of some peculiar power or agency upon ordinary matter and its forces. This power is, in its nature, as different from the force as it is from the matter. It is one of *the immaterial agencies* in Nature, the existence of which has been admitted by philosophers of every school, and by the disciples of every faith, save by those few persons who have embraced the dogma that in Nature there exists nothing but matter and force, and who profess to believe that the formation and action of the simplest organisms, as well as the working of the human intellect, are to be explained by the operation of material forces alone."

From this it is easy to see that, in attempting to define

life, he has not done better than the gentleman who said "Polarized light is polarized light." And again, it is patent that all the ridicule which he has attempted to throw upon Aristotle, Harvey, Hunter, Abernethy, Müller and Prout, has fallen back upon his own shoulders. Is his immaterial agency one farthing better, or more satisfactory, to the understanding of life, than Aristotle's psuchai, or Harvey's principle of life, or Stahl's anima, or Müller's organic force? Aristotle has at least the advantage of being poetical, while not less intelligible; and Müller's organic force is a much happier expression for something unknown (up to this time at least) than the immaterial agency of Beale, which flies to and from dead matter, creating here and killing there.

Beale does not at all need to make such desperate efforts (and therein lies his false position) to find out the essence of life by the microscope. A man who says as he does on pages 12 and 13:

"As each organized body has a certain end to serve in the economy of the living world, so each organ has its proper use in the animal or plant. In this adaptation of parts to the performance of certain functions, we see the strongest evidence of Design; and, amidst such apparent difference of form and obvious diversity of purpose, the anatomist recognizes a remarkable unity of plan—affording incontestable proof that the whole was devised by One Mind, infinite in wisdom, unlimited in resource."

Again, on page 17:

"How beautiful is the provision which this power, possessed by organized bodies, of generating others, affords, for preserving a perpetual succession of living beings over the globe! The command, '*Increase and multiply*,' has never ceased to be fulfilled from the moment it was uttered. Every hour, nay, every minute, brings into being countless myriads of plants and animals, to supply in lavish profusion the havoc which death is continually making; and it is impossible to suppose that the earth can cease to be in this way replenished, until the same *Almighty Power*, that gave the command, ***shall see fit to oppose some obstacle to its fulfillment.***"

Such a man would be perfectly consistent with himself in admitting a *spiritus rector*, a direct offspring of Deity to perform the office of life. Beale has eliminated himself from the ranks of the true naturalists, men of sober and sound reasoning, and he must be classed with the advocates of Transcendental Philosophy. And this same Beale is, I understand, looked upon, in England, and accused of being a materialist. *God save the Kingdom!*

But I have devoted more time and paid more attention to Beale, as a philosopher, than the importance of the matter deserved. I shall meet him again in his capacity of Histologist and Physiologist in the course of these lectures, and I hope I shall not fail there again to point out some of the fallacies emanating from his preconceived notions. Before taking leave of him for the present, I can not help making some remarks of a somewhat unpleasant character. In perusing Beale's works, one will at once see that he is acquainted with all the scientific productions of Virchow; but it will not escape notice that he never omits an occasion to oppose Virchow, when he thinks he is able to do it with success; while, on the other hand, he seldom, if ever, mentions him in connection with matters beyond dispute. A petty jealousy on the part of Beale is evident everywhere. And how infinitely higher stands Virchow than Beale! I shall hereafter have frequent occasion to justify this my suspicion.

And now let us come to the point—What is Life?

If you should demand of me a precise and exhausting definition in a few words, I would be compelled to say I do not know what life is. Life is a process so much complicated in its nature that it can not be defined in one short sentence. Mr. Virchow defines life as follows: *"Life is but a peculiar species of mechanical action, and the most complicated form of it, that form in which the common mechanical laws operate under the most unusual and most manifold conditions, and in which, consequently, the final results are

* Page 26 Gesammelte Abhandlungen.

remote from the beginning of the process, a long series of evanescent intermediate links intervening, so that the connection between the beginning and the end can only be established with the greatest difficulty." I feel assured that you are not satisfied with this definition, and yet it is the most complete that I can give. The human language is not rich enough to give expression to all shades of ideas, and therefore I can appreciate your disappointment. If you will follow, however, the train of thought by which Mr. Virchow arrived at this conclusion, you will find this definition more palatable, and even satisfactory, in that he was able to give any definition of life at all. His arguments (partly in a synoptical form, partly in verbal translation) are about as follows: "All, that we call living, has one common feature, i. e., *origin from a cell;* not only the mono-cellular plant and the mono-cellular animal, but also the complete plant, and the most highly developed animal, originate in a simple cell, (the ovulum). Life is limited to the definite form of the cell. There is no manifestation of life without the cell. The cell is the simplest form of life, and the expression of life is, therefore, cellulation, organization."

Organization, however, is not life itself, but the manifestation of life, the visible result of life. The material upon which life manifests itself, undergoes already, before we can observe cellulation, a series of chemical changes. We must, therefore, at the beginning of the new life, discriminate between an *internal* and an *external act.* The external or plastic act depends upon the preceding internal act. The internal preparatory act is, as far as we are able to conceive it now, a chemico-catalytic one. The substances making up the blastema are certain chemical substances; those which, in virtue of the internal differentiation, are formed, and which furnish the material for organization, are likewise chemical bodies. The laws which regulate the formation of the latter out of the former, differ in no way, as far we comprehend, from common chemical laws. Yet from this we can not con-

clude that the internal catalytic, the true genetic, act is caused by chemical affinities of the cell contents.

The common chemical and physical (mechanical) laws exist also in the living organism. The processes of life, as they occur in mechanical substrata, show no variation from the usual manifestation of chemical laws. But the mechanism of life, the physical and mechanical processes manifesting themselves in life, do not explain life in its innermost essence; they do not contain the inherent principle of unity. The mechanical laws do not manifest themselves at any moment. They depend upon properties which are forever inherent in matter, but often latent, and which come only into existence when there occurs a change in the relation of bodies, by which a change in our nervous centres is caused—a change in the relation of bodies through a motion in the bodies. Motion itself is mechanical (physical or chemical), and can not be produced but in a mechanical way. The impulse, i. e., the cause of motion, however, is, as far as our knowledge goes, invariably the consequence of another motion; and the further we inquire into the impulses, the less will we be able to establish the idea of the spontaneity of the impulse. The question of the aboriginal impulse, the Creation, is therefore a transcendental one, because leading us into a field which defies all and any experience, and to receive a conscious perception of which is totally impossible. So is it exactly with the impulse of life. The internal catalytico-genetic act, furnishing the conditions for the generation of the external plastic act, is mechanical motion. This motion, however, is caused or excited by something which is not motion itself. Now what is this other something? It has been named life, vital force, vital power, principle of life, essential force, organic form, soul, &c. We have thus found a formula, but the equivalent, for which this formula was substituted, remains an *X*.

Is this something spontaneous? At present we see no new forms come into existence. Every living organism, no

matter how simple, is the offspring of another living organism, and endowed with impulsive or propagative power; and so on *ad infinitum*. It is true that history teaches us that there were periods in which new forms of life have appeared. Palæontology demonstrates that the oldest layers of the earth-crust show no traces of living organisms, and that only in the course of revolutions, the duration of which is unimaginable, the surface of our planet has, by and by, become the seat of life, by the appearance of plants and animals. Layer after layer of the earth's crust contains other forms of life; sometimes quite new classes of animals and plants; sometimes genera, which became extinguished. Now, was there at that time a spontaneity of impulse (excitation)? Was there at that time, on the fifth or sixth day of the existence of the world, outspoken the word of Creation, "fiat" (let it be)? Our science can not procure the proof to answer questions of this kind. But if what we say about constancy (persistency) of matter, and constancy of force be correct, then the constancy of motion will be the necessary consequence, and we can not help admitting that during the great revolutions of our planet there were moments in which the motion (as it was up to that time) underwent sudden great changes, perhaps in consequence of a change of relationship of the earth toward other parts of the solar system, so as to furnish the conditions for the manifestation of the chemical and physical forces in a quite new manner, by severing old combinations, and inducing new compositions, the multifariousness and marvelousness of which we may comprehend if we consider the vivacity of the chemical attraction in *statu nascente* of combinations.

It is true that chemistry has not yet succeeded in making synthetically bodies like albumen, starch, &c., or in causing cellulation in them. But it would not follow from this that the periods of "creation" are closed, or that scientific exertions should forever be futile in the attempt to artificially produce organic substances, even though on a small scale.

This much, however, is true, that up to the present moment, the conditions under which the common mechanical motions are correlated into vital motion, are completely unknown; and that at present all life of which we become conscious, is transmitted life, propagated from one to another living being. In the process of life there is, then, a something known and a something unknown. The impulse of motion is beyond the reach of observation, while motion itself is more or less accessible to our investigation. Motion itself is mechanical, otherwise we would not become conscious of it. The bearers of motion are certain chemical substances, for we do not know any other than chemical substances in the body. The simple motory actions consist in physico-chemical changes of the elements which constitute the organic units, the cells and their equivalents. The contest between mechanical action and life is solved in the foregoing principles. Mechanical action and life are not identical, "*as life is but a peculiar species of mechanical action, and the most complicated form of it,—that form in which the common mechanical laws operate under the most unusual and most manifold conditions—and in which, consequently, the final results are remote from the beginning of the process, a long series of evanescent intermediate links intervening, so that the connection between the Beginning and the End can only be established with the greatest difficulty.*"

Thus far I have quoted Virchow.

And now, gentlemen, I am afraid that some of you will still not be edified by Virchow's definition of life, as the reasoning which he follows has not yet become very common in our country.

Try to become objective for a few minutes, and follow me with an untrammeled mind, free from preconceived ideas or notions, and we will, by briefly summing up, find out exactly what he means. Virchow emphatically states that we do not know what the essence of life is. But he does say distinctly that the essence of life, or life itself, is not something dis-

metrically opposed to every thing else in nature. We know that it is not in opposition to the mechanical laws in nature, but rather in harmony with them, consequently that it is not extra-physical or supernatural, and that it is not necessary to call into aid an inconceivable *deus ex machina* in order to comprehend it. In order to make his views appear plausible, he offers an hypothesis of transmitted motion as the creative act, by correlating the mechanical forces into vital force, and, in his argument, starts from *three* well established premises. First, That matter and force possess constancy. Second, That motion is an inherent quality of all matter. Third, That we can become conscious only of what materially strikes our brain, causing thereby changes in the brain itself. His reasoning from these premises is sound and logical from beginning to end. Any one attempting to refute his theory can only do so by annihilating his premises.

Gentlemen, I have not the least objection to any designation of what life is. I shall feel perfectly satisfied if I shall have succeeded in properly presenting what we mean by it, i. e., something not antagonistic to, but rather harmonious with, the rest of the natural laws.

One might now ask what good will result from all this in regard to the proper subject of these lectures on Pathological Anatomy? I say, more good than will appear at first sight, the proof of which will become evident during the rest of my lectures.

FOREIGN NEWS.

Dr. Marcet's Process of Artificial Digestion.—We would direct the attention of our readers to a pamphlet by Dr. Marcet, which, like everything else emanating from the same source, contains matter well worth general attention. Dr. Marcet first alludes to the importance of supplying nourishment in sufficient quantity to the system in cases where, from some peculiarity, the stomach is incapable of fulfilling its functions aright. Beef-tea and milk are often the only articles of diet the stomach will bear, and even the latter disagrees, whilst beef-tea alone does not supply sufficient pabulum. It therefore struck Dr. Marcet that the process which naturally goes on in the stomach might be imitated artificially, and so supply the food in a partially digested condition. He, accordingly, took hydrochloric acid and some pepsine, added these along with water to a quantity of meat, allowing the whole to simmer over a water-bath at about the temperature of the body. When the meat was sufficiently broken up, it was strained, and the acid neutralized by carbonate of soda, when it was ascertained that the product was of a most agreeable character, easily digestible, and containing a vast deal more nourishment than common beef-tea. The proportions he recommends are 58 grains of hydrochloric acid, sp. gr. 1.1496, in a pint (20 oz.) of water, with 15 grains of Boudault's pepsine, and 81 grains of bicarbonate of soda to a pound of meat (weighed raw), the chemicals costing about sevenpence. Where pepsine is unattainable, strips of calves' stomachs answer very well, or we do not see why the rennet prepared from it and used for curdling milk should not be employed. The food thus prepared keeps well until neutralized, but not so well afterwards. One point to be noticed is that no metallic vessel should be used in the process, lest the acid act upon it; but for full particulars we must refer our readers to Dr. Marcet's little work.*—*Medical Times and Gazette, June* 8, 1867.

Epidemic Cerebro-Spinal Meningitis.—This disease has prevailed lately in Dublin to some extent, and its nature has given rise to

*"On a New Process for Preparing Meat for Weak Stomachs." By W. Marcet, M. D., etc. London: John Churchill and Sons.

much discussion, while the profession has been sorely exercised to designate it by a proper name. By some it has been termed "black death," by others "febris nigra," "purpuric fever," "purple fever," "febris scorbutica," "malignant purpuric fever," "cerebro-spinal fever," "spotted fever," &c. &c. &c. A number of cases have been reported to the Royal College of Surgeons of Ireland, and the subject has been very learnedly aud candidly discussed by its Fellows, and notwithstanding the contrariety of opinion expressed as to the nature of the disease, we think that no doubt can be entertained as to its identity with the epidemic cerebro-spinal meningitis well known in this country.—*Medical News and Library, August* 1867.

IRIDECTOMY.—The *Gazette des Hospitaux* states that M. Houel, a hospital surgeon, tried this operation five times in cataract extraction and failed in every instance.—*Medical News and Library, August* 1867.

BOSTON MEDICAL LIBRARY ASSOCIATION.

OVARIOTOMY IN FRANCE.—This operation has been performed five times in Paris since January last, by several surgeons, among whom is M. Nelaton: two in the hospitals and three in private practice. Three patients died and two recovered.

CIVIALE'S COLLECTION OF CALCULI.—At a late meeting of the French Academy, the veteran Civiale exhibited his collection of urinary calculi, obtained from 2700 patients, operated on at various periods since the year 1824, of which 1600 had been submitted to lithotrity. The paper accompanying the collection is of the highest interest, since it contains the generalizations of a careful observer, who has both physically and chemically examined an immense and varied series of urinary concretions. M. Civiale dealt with the various forms of calculi, and especially directed attention to the hardness, consistency, and internal molecular constitution of calculi. This method of study he considered of the utmost importance, since, without an intimate knowledge of the nature of concretion, the lithotrist labors under many disadvantages and may lose much time in performing an operation. After dealing with the ordinary forms of calculus, M. Civiale proceeded to the unusual varieties. Of these he says there are the following: Conical, pyramidal, triangular, cubic, square, tetrahedral; calculi resembling a mushroom, a heart, and a brain.—*Medical Times and Gazette, June* 8, 1867.

M. NELATON—On the day after the election of this eminent surgeon to the seat made vacant in the Academy of Sciences by the death of M. Jobert de Lamballe, he received the cross of Grand Officer of the Legion of Honor from the hands of his young patient, the Prince Imperial.—*Medical News and Library, August* 1867.

TEST FOR GLUCOSE.—Braun uses a solution of picric acid in 250 parts of water. The glucose solution, containing a little caustic soda, is heated to 90 degrees, a few drops of the picric solution are added and the whole raised to ebullition; the presence of glucose is indicated by a blood-red coloration, due to the production of picramic acid. Cane sugar does not produce this change.—*American Journal Sciences and Arts, March*, 1867, from *J. pr. Ch.* XCVI, 411.

TEST FOR BILE IN THE URINE.—Cunnisset (*Journal de Chemie Medicale, January*, 1866) proposes the following test for the presence of bile in the urine: Add to urine in a test tube one-tenth of its bulk of chloroform, and shake; if the mixture becomes yellow, bile is present, and if it be allowed to stand, the chloroform sinks to the bottom, taking the coloring matter of the bile with it. This test has evidently been suggested by Brucke's method of separating the brown coloring matter of the bile; he pointed out, a good while ago, that if bile be shaken with chloroform it becomes yellow, and on standing the chloroform sinks to the bottom, drawing the biliphaeine with it.—*Journ. of Anat. and Phys., Nov.* 1866.

SOUND MADE VISIBLE.—At the Royal Institution on Friday evening, the 21st inst., Professor Tyndall repeated some of those interesting and instructive experiments by which he has on previous occasions given ocular proof of the effects of sonorous vibrations. When a jet of gas is burning under an amount of pressure which is but just short of the "flaring"-point it becomes excessively sensitive to a momentary increase of pressure, and will respond in the readiest manner to the slightest sound, vibrating actively to the merest "chirrup" of the lips. A still more remarkable demonstration was made with a thin column of smoke, of which the shadow was cast on a screen by means of an electric light; here the smoke became so sensitive that the slightest vibration of the air affected it, and two tuning-forks making a discord produced the well-known beat, which was attended by a marked pulsation of the edges of the shadow. Perhaps

the most beautiful ocular demonstration of the effect of sound was produced by throwing the electric light through a minute stream of falling water, the effect being to produce a string of glittering drops of the most brilliant appearance. When musical notes were sounded in the vicinity, these drops altered their arrangement in obedience to the waves of sound, and clearly indicated by their modified appearance the effect produced npon them.

Among other interesting experiments exhibited by Professor Tyndall was the one originally devised by Faraday, of magnetizing a beam of light. This beautiful delicate operation consists in sending a beam of polarized light through a bar of "heavy glass" placed in the line of force between the poles of a powerful electro-magnet, after having passed it through plates of right and left-handed quartz in juxtaposition, which are adjusted into position so as to give the "sensitive" tint. The phenomenon is very remarkable when submitted to the action of the magnetic current: and the effect of the reversal of the current is to reverse instantaneously the order of the colors, of the spectrum produced, thus demonstrating the rotation of the polarized beam when under the influence of magnetic energy.—*Lancet, June* 29, 1867.

Deaths from Chloroform.—On Saturday last an inquest was held on the body of George Gillard, who died in the Tarton Hospital, after having chloroform administered to him. It was proved that death resulted from syncope, caused by the chloroform. The jury completely exonorated the medical attendants from blame.—*Lancet, Muy* 11, 1867.

An inquest was held on the body of a little girl, aged 9 years, who died in University College Hospital from the effects of chloroform given to facilitate the operation for the cure of strabismus.—The chloroform was administered with due precaution by the acting physician's assistant, but after the inhalation of a drachm and a half, the pupils dilated and respiration ceased. Artificial respiration was at once employed, but death occurred about two hours subsequently. The jury returned a verdict of "Death under the administration of cloroform through misadventure."—*Lancet, June* 1, 1867.

OBITUARY RECORD.

"A sleep without dreams, after a rough day
Of toil, is what we covet most; and yet
How clay shrinks back from more quiescent clay."

Died, in Paris, May 21st, of enlargement of the heart, aged 44, M. **Follin**, President of the Societe de Chirurgie of Paris, Assistant Professor at the Faculty of Medicine, for two years official lecturer on Ophthalmology, and for several years one of the editors of the *Archives Generales de Medecine.*

M. Follin's death is a professional loss, as he was one of the most promising surgeoms in Paris. We knew him personally in 1857, when in Paris, and no one was more genial and polite to foreigners than he. His "*Systeme de Chirurgie*" is but half completed, as the second volume was but just commenced when his untimely demise took place.

We are called upon to chronicle the death of M. **Civiale**, the celebrated lithotritist. He expired suddenly on June 18th, aged 75. Civiale was the first to crush a stone in the bladder of the living. Without being a profound thinker, he was, nevertheless, a skillful surgeon when performing lithotrity. His writings were chiefly connected with diseases of the urinary organs.

On June 23d, from cancer of the stomach, died **Trousseau**, indisputably the greatest of the French physicians. To the last, says the *Lancet*, he preserved all his lucidity of mind, and whilst all around him were overwhelmed with grief he was full of peace and resignation. Contemporary medicine has lost in M. Trousseau one of its most eminent representatives. Endowed with the highest abilities and the most varied aptitudes he had risen to the loftiest distinction in the different pursuits and avocations, to which he had applied himself during the course of his brilliant career. His fame was equally great as a professor, as a writer, as an orator, and as a physician; none who have had occasion to hear either his lectures at the Hotel Dieu, or at the Faculty, and his harangues at the Academy of Medi-

cine, will ever forget the richness and happiness of expression and the artistic arrangement of words and ideas with which he invariably seduced and captivated his audience.

Thus disappear, one after another, men who have shed lustre on the Faculty of Paris : Chomel, Rostan, Jobert de Lamballe have passed away ; and, from that splendid phalanx of eminent professors who have spread the fame of the Paris School far and wide, only two still active and energetic men are left, Velpeau the surgeon, and Bouillaud the physician. Andral and Cruveilher work no more, but are resting upon their well earned laurels ; whilst Rayer somewhat holds his ground in spite of age, displaying at times considerable energy where works of benevolence are concerned.—*Medical News and Library August*, 1867.

THE death of M. PELOUZE, the well-known French chemist, has recently been announced. This distinguished savant was favorably known from his valuable contributions to science. He was a pupil and afterwards assistant to Gay Lussac, and took part in the principal discoveries of his illustrious master. He has published numerous memoirs in connection with chemistry, and has written, together with M. Fremy, a large treatise on that subject in six volumes, which has deservedly become a standard book on this subject.

WE have also to announce the loss of one of England's greatest men. SIR WILLIAM LAWRENCE died of paralysis, at his residence in London, July 5th, at the ripe old age of 83. Few men reach such maturity of years, and few men reap more honors than did Sir William Lawrence. At his death he was Sergeant-Surgeon to the Queen, and Surgeon to the Royal Hospitals of St. Bartholomew and Bethlem.

His learning was great, and his accomplishments many, and the profession knew and honored him for his zealous and earnest labors. His numerous *Surgical papers*, the *Treatise on the Eye*; his *Lectures on Zoology and the Natural History of Man*, give evidence of his intellect, and will always stamp him as one of the great ornaments of our profession.

PROF. OTTO WEBER is dead. Simple as is this announcement, it bows Germany with sorrow, and fills the heart of every physician

and surgeon in the world with regret. In the bloom of manhood, fulfilling the duties of his professsion, he was stricken down, a victim to his own ardor, and a sacrifice to his own humanity. While performing an operation of tracheotomy on a diptheritic patient, he absolutely attempted to clear the obstructed canula by suction. Failing in it, each of his two assistants attempted the same thing, and all died. Once before, when operating in a case of croup, he did the same thing, and then came near being carried off by the subsequent laryngo-bronchitis.

Weber was only thirty-nine years of age, and as Chelius's successor as Professor of Surgery in the University of Heidleberg, had already carved his name upon the scroll of immortality, in letters of the purest scientific gold. His labors, first as assistant to Wutzer and Busch at the University of Bonn, then as Professor of Pathological Anatomy, where he battled stout and strong for Virchow's doctrines, becoming the most prominent among the leading disciples of the great Berliner, pointed him out as the future Achilles of the surgical world of Germany. Like Achilles he was fated to die young, but the most renowned of all the leaders. For a number of years past, Weber has been the most indefatigable of workers. Experiment after experiment in physiologico-pathological fields opened up mines of wealth which he used to exhaustion, but by which he enriched the profession as few have been enabled to bestow. When Chelius's successor was to be appointed, all Germany sent candidates, but none could compete with Otto Weber. As an operator, Weber was not brilliant, but as a true Surgeon, Pathologist and Anatomist he had no superior, and probably no equal. His last scientific production was the *General Part* (*Surgical Pathology*) to the large *Handbuch der allgemm. und speciell: Chirugie*, just published under the auspices of nineteen of the most eminent German surgeons, and superintended by Von Pitha and Billroth. Weber's portion was the lion's part, and had he never written aught else, his pæons would be sung by Science with as great praise, as with deep grief she chanted the funeral hymn at his burial. A void which will not soon be filled has taken place. The gurgling Neckar ripples in mournful beauty by his freshly sodded grave, silently weeping for the great master. The old castle of Heidleberg towers above him, a fitting monument for magnificent genius. The traditionary lore hanging about the Kaiserstuhl will gather his memory to the leaders of the past, and mingling with the train of those heroes gone before, it will be enthroned upon the pinnacles, to shine in future

ages. Let us drop an humble immortelle upon Otto Weber's tomb, and as we reverently pass in review the glories belonging to him,

A new sensation
Throbs o'er our spirit like a vital spark—
A beacon in the dark
Of weary, weary years—a strange pulsation
Waking sweet music upon rusted strings,
In oracular murmurings.

THE news of the death of DR. WARREN, of BOSTON reaches us just as we go to press. For many years he stood at the head of his profession in the New England States, and now that he has left the scene of his labors, his pre-eminence stands out in bolder relief than ever. We condole deeply with the family of the deceased, and grieve with the profession of Boston in their irreparable loss.

DR. JAMES JACKSON. of Boston, died on the 27th, of August, aged eighty-nine.

One more of the great men has fallen in the profession.

EDITORIAL.

THE BOARD OF HEALTH AND THE SANITARY CONDITION OF ST. LOUIS.

St. Louis thus far has been spared the visitation of cholera as an epidemic; and whether the Board of Health, or Providence, has to be thanked for it, seems a matter of great doubt in some minds. While we recognize the great advantages accruing from sanitary measures as a matter of public health, we can not indorse the Board of Health in all its actions. We are grateful for the slop-carts, the street cleanings, the statistical records, imperfect as they are, the improvements in our various hospital arrangements, and the zeal shown by all connected with our Board of Health; yet

we do condemn, scientifically, as physicians, the enforcement of the vegetable and fruit order. Some medical men, not absolutely unknown to the citizens, were bold enough to enter a protest, and to ask a repeal of the obnoxious order, and the only reply received was certain irresponsible communications through the public prints; and, also, a considerable effort upon the part of our newspapers to prove that the mortality diminished right away after the Board issued its order.

Let us examine the statistics. For the week ending prior to the order, the number of deaths was 141; for the first week afterward, 128; for the second week afterward, 171; for the third week afterward, 206; for the fourth week, 209, of which 65 died of CHOLERA MORBUS!! Strange results as regards the action of the Board of Health diminishing the rates of mortality!

Now let us analyze the mortuary report for the week ending Friday, August 16th, 1867. We find, of the 206 deaths, that 108 were children under five years of age; and of the 108 we venture to state that four-fifths of them were children under three years of age, who, as a general thing, are fed by responsible persons, and many of whom are nourished by the mother's milk. Now, again, we find, of the 206, that 97 died of diseases foreign to bowel affections, leaving 109 of the latter class to be accounted for. In analyzing this 109, we find that there were reported cholera infantum, 23; cholera morbus, 45; diarrhea, 5; dysentery, 13; enteritis, 2; marasmus, 5; summer complaint, 15; peritonitis, 1. Cholera infantum is more than twenty per cent, cholera morbus more than forty-two per cent, and the two together sixty-two per cent of the 109, or about one-third of the entire mortality. These figures augur very strangely; and the deduction is, that cholera infantum and cholera morbus are alarmingly prevalent, and that some peculiar change in people's diet is the cause of it. Physicians, as a general thing, admit that diet has a great deal, if not all, to do with the production

of these diseases. Usually such diseases are not very fatal, and the summer of '67 opens a new phase in their history in St. Louis. Possibly, if the people could get such food as nature bountifully yields in the summer, *cholera morbus* particularly, would not prevail to such a fatal extent. Now, in plain terms, we do not believe that these patients died of cholera infantum, or cholera morbus, and we are satisfied that cholera carried off a great many of them. Why does the Board of Health conceal from the public the true state of things? If it do not conceal the facts, then they are incompetent to act as the conservators of the public health, because they are readily and easily imposed upon and deceived; and if they do conceal it, they do it to bolster up that fruit and vegetable order, or from other motives of mistaken policy unworthy of a public body, chosen for their eminent fitness and scientific professional attainments.

Does any sane man in the world believe that, after such a fearful epidemic of cholera as prevailed in St. Louis during the last summer and fall, that we could have gone thus far into a second year without the appearance of a single case of cholera? Yet, from the records of the Board of Health, such appears to be the fact!! Repeal, gentlemen of the Board of Health, your vegetable and fruit order; appoint vigilant and trustworthy men—a dozen, if need be—at each market, and confiscate then and there all unripe or decayed vegetables or fruits; such as you have done for the meat markets. Let us have some corn, squashes, oyster plants, cabbages, etc.; cholera does not reside in them; its abode is where no man knoweth, and it cometh and goeth—not in cabbages or corn. Did cholera originate at Fort Harker from cabbage or corn? We promise a hearty support to the Board in every thing that is based on common-sense doctrines, and will unite with it in all measures to make us cleanly and healthy, but we can not countenance the vegetable and fruit order.

PROF. HORATIO STORER, OF BOSTON.

We would particularly call attention to the notice of Prof. Horatio R. Storer's lectures on the *Surgical Diseases of Women*, to be delivered at his rooms in Boston during the first fortnight of December.

We congratulate Dr. Storer upon his efforts to promote the study of Gynæcology in the United States, and we advise all who can, to attend these lectures. From our knowledge of the distinguished lecturer, we unhesitatingly say that no one is more competent to instruct, and no one more deserving of his brilliant reputation, than is Horatio R. Storer, M. D., of Boston, Massachusetts. We admire his pluck in boldly striking out for specialties in medicine, particularly in Boston, where so many difficulties had to be overcome, and where so many prejudices were encountered. Dr. Storer is now reaping his reward in the support given him by the medical men all over the country. The esteem in which he is held is abundantly vouchsafed by the action of the graduates of his first class, who unanimously accorded him thanks for his able course, the particulars of which will be found in the Boston *Medical and Surgical Journal* of the 20th of June, 1867. All who attended these lectures were men who had worked for years in the profession, and who had imbibed the various antagonistic views which have been presented for the last twenty-five years, and which had some good and a great deal of evil mixed together. A systematic course of lectures by an able and experienced teacher, obviates all such difficulties, and Dr. Storer is the man to do it; and once more we cordially invite attention to his card, and wish him success in his undertaking.

DR. HAMMER'S LECTURES.

The first of Dr. Hammer's series of lectures on Pathological Anatomy appears in this number, and will be pub-

lished until the entire number are presented. The delivery of these lectures is in consequence of a request tendered Doctor Hammer by a large number of physicians in St. Louis; their publication is at the urgent solicitation of many who were precluded from hearing them; and as they aim to present the latest views of all the celebrated European Pathologists, and as an exposition of advanced scientific views, the friends of Dr. H. desired to see them in print. For these reasons alone did the lecturer consent to their appearance in the HUMBOLDT MEDICAL ARCHIVES. They are stenographically reported.

THE REPORTS of the transactions of the Pathological Society, the St. Louis Medical Society, and the Young Men's Medical Society can not appear in this number, as all have adjourned to the second week of September. We will give them regularly during the *séances* of all these Societies.

HUMBOLDT MEDICAL COLLEGE.

When but little of the now enlarged field of medical science was known, and that little was but imperfectly known, it may have been considered sufficient that a medical student attend a few months upon a course of lectures, in which all departments of medicine were taught the same student upon the same day, regardless alike of what he knew and of what he was ignorant. But, certainly, this can no longer be considered adequate or even admissible, now that our science has been so greatly extended as to embrace, more or less directly, much of all that is known; and, its several departments have been so thoroughly systemized as to rank, in some instances, as distinct professions.

To meet these changed relations, and the rapidly increasing demands of a progressive science, the time of attendance

upon lectures has been extended in this College to two regular terms of seven months each, and two summer terms of two months each, making the whole time of attendance upon lectures eighteen months (attendance, however, upon the summer terms, while greatly desired by the Faculty, not being made obligatory upon the graduate for graduation); and a more systematic arrangement of the course of instruction has been established, whereby the student is inducted from the simple to the complex; and, as in the natural consecution, consequences follow antecedents, causes precede effects, he will be taught anatomy and physiology before he is introduced to the secret of their morbid changes as revealed in pathological anatomy; and chemistry and botany, in his instruction precede materia medica. A much greater attention is also given to the special branches, such as pathological anatomy, ophthalmology, diseases of the ear, diseases of the skin, medical jurisprudence, toxicology, gynecology, etc., than is possible, as a whole, in other schools under their present system.

To meet this greatly enlarged course of instruction, in addition to the greatly increased time of attendance upon lectures, the number of the Faculty has been increased from seven—about the ordinary number in colleges—to fourteen, exclusive of Prosector and several assistants; and the Seven-Months Session has been sub-divided into two courses of three and a half months each, the better to correspond with the systemized division of instruction. This, with the establishment of Junior and Senior Classes, brings the *course of instruction* fully up to the wants of the age.

Our hospital advantages are all that could be desired. The large City Hospital, to which we have free access, is directly opposite the College Building. This field of observation, at the bedside and in the dead-room, offer untold advantages to the medical student. Other institutions of the kind are at our command, of which we shall avail ourselves at convenient seasons; but we may here suggest what often seems to be

overlooked, that attending thoroughly one good general hospital is worth tenfold more to the student than superficially or casually visiting a large number of institutions, and thus allowing the material of such a hospital to run to waste, and the knowledge to be acquired in it, to be lost. In addition, however, we have a Dispensary and Lying-in-Ward attached to the College, where clinics are regularly held, even during the summer season. These clinical pursuits, which form so prominent a feature of our institution, render it impossible that the graduate in medicine should leave college versed in theory simply, and wholly ignorant of all practical knowledge.

While clinical material is a matter of paramount importance, we do not claim, as do some of our contemporaries who lay such particular stress upon their special clinical facilities, that it is all in all. Clinical teachers have something to do with the matter, and the *knowing how* to do it is of wonderful use to the student, and clinical facilities, without the proper cliniciens, are nullities. In most Medical Colleges certain times are set apart as Hospital days, and as a consequence, the students are crowded together and jammed up so inconveniently, as to be utterly precluded from learning anything concerning a particular case. To overcome these obstacles, the Faculty of the Humboldt College have determined to divide the class in such ways, that the history and treatment of a given number of cases can be followed to their termination, and to do this *every day*, will be *clinical day*.

It will thus be readily seen, that while the Humboldt Medical Collége offers every inducement to the medical student, anxious to acquaint himself with the great principles of his profession, and, by systemizing, and dividing up the course of instruction, facilitates his studies, at the same time securing that thoroughness without which there is no excellence, its inducements are only to these; it offers none to those whose highest ambition is to obtain the degree of Doc-

tor of Medicine, regardless of merit; as these must still find stronger inducements in such schools as make doctors on shortest time, and with the least expense and exertion on the part of the student.

Nor, in all this, do we arrogantly assume that ours is the only school in which the science of medicine is so taught that the diligent student may obtain a respectable amount of knowledge; but what we do assert is, that if it is not more thoroughly taught in this, than in any other school in the States, the fault is with the teachers, as it is undeniably manifest that the opportunities for a thorough and systematic education are superior to those offered by any other school in this country.

In this effort to elevate the standard of medical education, the Faculty and Directors feel encouraged by the success thus far attending their labors. For, although the lectures last fall commenced at the unusual season of the middle of September, almost literally unannounced, the circular for the winter session having been published only a few weeks before the commencement of the lectures, and the college edifice actually building over the heads of the Professors while they lectured, yet there were in attendance eleven regular students, of whom four graduated, having attended one or more full terms at other colleges. Under such circumstances, this can but be considered a favorable commencement. And the course of instruction received a most flattering indorsement, in the action of the candidates for graduation, who felt so strong in their thorough acquaintance with the principles of medical science, that, in addition to having written an original *dissertation* or *essay*, subject to defense, they asked to publicly defend a medical *thesis*, all physicians being previously and at the same time invited to participate, which new feature was thus introduced with great satisfaction at our first annual commencement.

As a further indication that the plan truly represents the

want of the age, the Faculty refer with pride to the fact that since the publication of their prospectus last summer, announcing their views, a prominent member of a Western school—chairman of the committee appointed by the American Medical Association to call a convention for the purpose of revising Medical College Education—issued a circular, calling a convention of all the medical schools in the United States, to consider the adoption of measures of reform, much the same as those set forth in their prospectus. And though they regret to add this meeting was a failure in its *immediate* action, yet the friends of reform can but hope great good will result from it; as, by thus calling the attention of the profession, and of the public, to the alarming deficiency of the present general system of medical education, the schools will be forced to pay more regard to the *quality* than to the *number* of their graduates.

While the representatives of these schools at the Convention seem, by their proposition to extend the term of medical instruction to four years, to have intended to make any reform impossible, still our confidence in the future is unimpaired; the genius of the age requires and is sure to enforce a change. If we can not hope the great moral worth, and good sense of those concerned as teachers, will so far triumph over all selfish considerations, as to effect the necessary reform, then we must hope an exacting public, whose well-being is concerned in this movement, will require such action on the part of Medical Colleges as shall secure the reformation.

HUMBOLDT MEDICAL ARCHIVES

Vol. 1. OCTOBER, 1867. No. 2.

ART. I.—RÉSUMÉ OF FORTY-SIX UTERINE SECTIONS. By MONTROSÉ A. PALLEN, M. D. Professor of the Institutes of Medicine and Gynæcology, in the Humboldt Medical College, St. Louis, Missouri.

[CONTINUED.]

CASE V. Mrs. B., aged 29, married and sterile, came from Arkansas in July, 1866, to be treated for general bad health, dependent upon uterine trouble. She had enlargement of the liver and spleen, the result of numerous attacks of intermittent and bilious fevers during the preceding six years. Her menstruation was rather scanty but very painful, and her medical advisers had properly told her that a change of climate to overcome the paludal difficulties of liver and spleen, would in all probability materially benefit the catamenial troubles, and that if she could have a child all would be well. Both her husband and herself were very anxious for issue, but as they had been married ten years, they were disposed to despond. Such were the conditions when I saw her, and I rather confess that I was not over hopeful as to the result of any treatment. The subjective phenomena were such as usually accompany dysmenorrhœa co-added to visceral derangement. A speculum examination revealed an enlarged indurated cervix, with epithelial ulceration within the os and irregular patches of granular erosions all about it: the discharge was

muco-purulent, slightly bloody, very viscid, ropy and tenacious. The ordinary Simpson's sound could not be passed beyond the internal os. A small uterine probe was with difficulty entered, when, much to my astonishment, the convexity was turned towards the right plane of the pelvis, and not in its normal position towards the sacrum. The depth of the cavities of the neck and body, was 3¼ inches. Upon the withdrawal of the probe and speculum, the patient was turned from the left lateral semi-prone position to the dorsal, and a digital examination, with palpation in the hypogastric region, revealed a left lateral version of the uterus, slightly retroflexed. A line drawn from the left sacro-iliac synchondrosis towards the right acetabulum would represent the axis of the organ. Now came a question as to the propriety of an operation. Would her general cachectic condition warrant surgical interference? The probabilities were against it, yet experience in other fields of surgery indicated that the removal of tumors, amputations, etc., frequently superinduced a return of health; but in this instance was the uterine trouble a sequitur of visceral derangement, or had it pre-existed. She had been married ten years, had always suffered with more or less of dysmennorrhœa, and was sterile. These points satisfied me that the uterine difficulty was in no wise the result of visceral trouble, but rather a concomitant, therefore an operation was advised, as a part of the treatment necessary. As she had yet some fifteen days before the catamenial period, a general preparatory systemic treatment was commenced, consisting of frequent bathing in tepid salt water, frictions over the liver and spleen, the inunction of nitromuriatic acid, and the use of large quantities of the iodide and bromide of potassium. Under this plan of treatment her general improvement was marked, and when the menstrual period came on, she looked and felt better than she had done for some time, but four days of painful menstruation soon tumbled the fabric of restoration, and when her period was over she felt and looked as bad as ever. This result absolutely determined me to operate, which would not have been done,

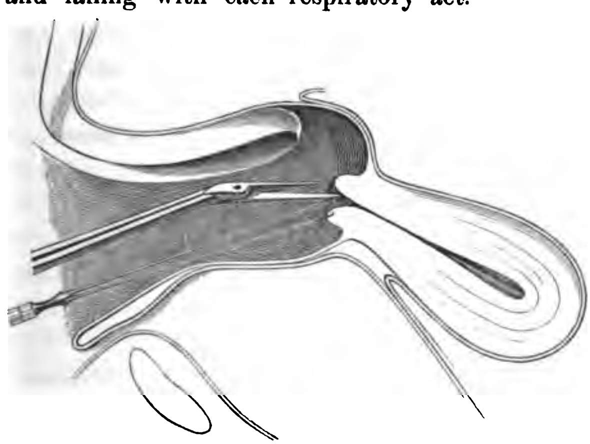
had the constitutional treatment brought her through her troubles with less pain and continued systemic improvement. These facts were all presented to the patient, who consented to an operation, which was performed on the 2d of August, 1866. Sims's bilateral section of the external os and cervix was made, together with a rectangular division of the internal os; the principal incision being made through the anterior margin, which was turned towards the right plane of the pelvis. Very little blood was lost, and the wounds dressed with the gycerole-iron cotton plugs within the internal os, and the cervical incisions; the whole packed in the cup-shaped glycerole cotton, and the vagina tamponed with dry cotton. The tampon and dressings were daily applied, (both before and after the plugs within the internal os were cast off by the suppurative process), until the next menstrual period, which came on painlessly. It is well to state that the constitutional treatment was discontinued, and notwithstanding the absence of all medication, she mended most markedly, and was better and stronger after the menstruation than before. I did not even administer the usual opiate after the operation, as she was disposed to constipation, and the maintenance of the horizontal position was sufficient to restrain the bowels. There is no pathological reason why the bowels should be quiet, further than that some hemorrhage might supervene if the patient were permitted to move, and intestinal motion evidently would be such a provocative. After the cessation of the menses, the application of chromic acid to the lining membrane, to get rid of the endo-cervicitis and endo-metritis, was commenced, and with the tincture of iodine, applied afterwards, continued until the next menstrual period, which also was painless. The canal continued patulous and a Simpson's sound could be easily introduced. The endo-cervicitis and endo-metritis yielded to the local treatment, as the muco-purulent discharge ceased altogether, and was replaced by a healthy lubrication of a limpid mucus. The granular erosions and epithelial ulcerations disappeared, and the enlarged indurated cervix became

soft, smaller, elastic and pink in color. The general health was most satisfactory, and the patient returned home in October. I have heard from her once or twice, and although conception has not taken place, yet her general condition is good, and the dysmennorhœa is cured. The result in this case certainly was most gratifying, and by means of mechanico-surgical interference. Lest I should be misunderstood. I would remark that I cannot attribute, nay, I do not even claim that the visceral troubles were benefitted by the operation, but the changes of the climate and mode of living evidently brought about a healthy functioning of the liver and spleen, after the great central focus of woman's organism was relieved of irritation. Every one knows that the uterus once deranged, any one set of organs, or many of them, are, in consequence of reflex-action, disposed to be likewise troubled, hence it cannot be said that too much is claimed, when we *know*, not when we *suppose*, that a diseased condition of the former is cured, the latter are stimulated towards health, or if not urged by healthy uterine action, at least are disposed towards such.

I hope I may be pardoned for digressing from the subject direct to enter into an indirect one, but latterly my attention has been directed to an address purporting to have been presented by the President of the New Hampshire State Medical Society, an extract from which has been going the rounds of the journals, entitled "a raid on the uterus." While the publication of such a title was eminently fit, as such attacks are mere bushwhacking efforts to compete with the grand army of science, yet, like bushwhacking, it has a great tendency to throw discredit upon a cause correct and proper within itself. Scientific research is open to all, and because such men as our redoubtable New Hampshire President are piqued because of their own ignorance, such is not a reason why reputable Medical Journals should lend themselves to the defamation of honest attempts towards a proper appreciation of Gynœcology.

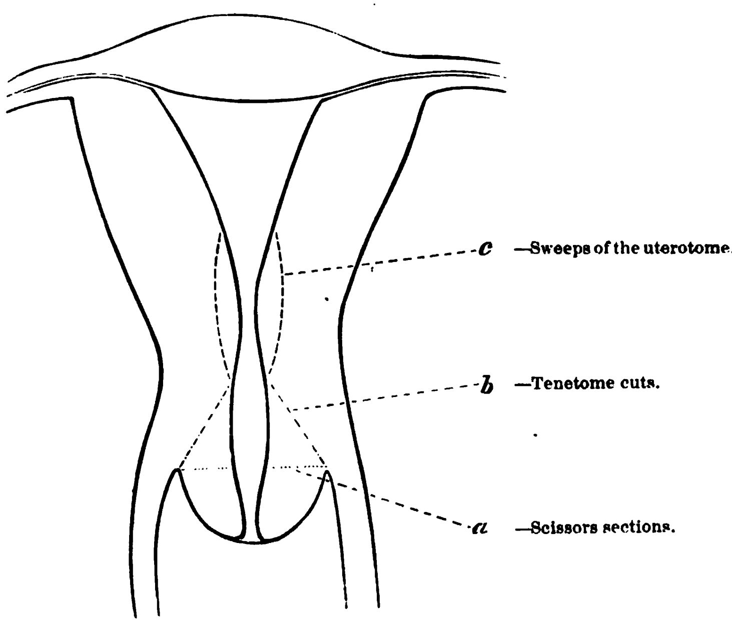
Before proceeding with the other cases of this résumé, it would be well to describe the bi-lateral section of Sims, otherwise, as a correspondent of the ARCHIVES suggests, "Old Fogies would not have the slightest idea of the minutiæ of the operations."

A patient presenting such symptoms, on whom a bi-lateral section of the cervix and internal os is to be performed, is placed upon a bed or table of convenient height, and put in the left lateral semi-prone position. This position is a substitute for the hands and knees, and consists in lying on the left side with the left arm flexed upon the back, the chest rotated, the sternum well down on the bed, the left parietal bone on a line with the spinal column which should be almost straight; the thighs flexed upon the abdomen, the right one more so than the left. The patient being well placed, anæsthetics are administered or not, as may be required, when a Sims speculum, (or my modification), well soaped* is introduced behind the cervix uteri towards the Douglas cul-de-sac or utero-rectal space, and the perineum retracted. The air then rushes in, distending the vagina to its utmost capacity, and the cervix uteri is exposed in situ, usually lying almost at right angles, and rising and falling with each respiratory act.



*Sim's suggestion concerning the use of soap instead ef grease, as a lubricant for the speculum, is most valuable, and any one who will try it, will at once appreciate the superiority.

When the patient is well placed in this position, with her clothing loosened and her breathing easy, the intestines gravitate towards the diaphragm, and as a consequence all superincumbent weight is lifted from the uterus, which is a material aid to the vaginal atmospheric pressure. A tenaculum is then hooked in the anterior lip of the cervix in order to steady the organ, and a pair of stout, narrow-bladed, long-handled scissors are used to divide it from the external os to the intravaginal junction on either side. This is usually done at one stroke each, care being taken not to divide the mucous membrane of the vagina. Should any bleeding of consequence ensue, it is checked by cold wet sponges; however, this rarely interferes with the other steps of the operation.



We next proceed to divide the triangular spaces (see plate) lying between the internal os and the scissors sections, and Sims advises the use of the uterotome to do

it, but, in order to expedite matters, I sweep a convex tenotome through them, and then pass the uterotome, set at an angle of 135°, through the internal os, and draw it through a thickness of about a line and a half of uterine tissue one third of an inch above, down to the cuts ended by the tenotome. Unless there should be an abnormal distribution of the circular artery, or the sections awkwardly deep, there rarely arises such a hemorrhage but what can be easily controlled by the application of small wet sponges, previously dipped in iced-water. These sponges, as Sims justly remarked should be small enough to enter easily the divided surfaces within the internal os, and to do that, they should be about the size of a hazel-nut. The tenaculum sometimes slips, particularly if there is nervousness upon the part of the patient, and as such is very annoying, I am in the habit of using a spring tenaculum, which is nothing more or less than a fine Museaux's forceps closing upon itself by means of a well tempered spring handle, and being once fixed never slips out, which leaves the uterus always under the Surgeon's control. The dressings consist of glycerole cotton plugs, saturated with a solution of sesqui-chloride of iron passed within the internal os, in order to prevent hemorrhage of a secondary character, and to keep the canal patulous in order that it may heal by the granulation process following the slight suppuration induced by these plugs. The same glycerole-ironed pledgets are laid between the cervical sections which are covered by a cup-shaped pledget of cotton saturated with glycerine, the whole being retained in situ by a tampon of dry cotton packed in the vagina, which also serves as a preventive of subsequent hemorrhage.

The action of glycerine upon a mucous surface is very peculiar. It seems to drain the parts of a large quantity of fluid (serous?) by osmosis, and two or three drachms of glycerine thus applied will set up a drainage of more than a pint in twenty-four hours, so much so, that I have had patients to become alarmed at the flow. Sims's explanation

is, that as glycerine has such affinity for water, it will have it even at the expense of the blood in the capillaries and thus it becomes not only antiseptic, but acts as a local depletant: two most valuable properties in those operations.

Case VI. Mrs. K., aged 25, applied for treatment July 31st, 1866. She had been married five years and had been confined ten months after marriage of a healthy male child. She however had some peritoneal trouble at the same time; possibly the metro-peritonitis of the lying-in-room. Upon her recovery from the puerperal attack, nothing particular was observed for some weeks, until the marital congress was attempted for the first time, when it was discovered that coitus was so excessively painful, that the attempt was given over. Her medical attendant prescribed some astrinsent washes with anodynes; and the coitus again attempted, met with the same result as the first effort. Subsequently during the following six months the efforts were made, and always were frightful, even in contemplation, to the lady, when the husband abandoned the attempt altogether. Nothing of an abnormal character presented itself until the appearance of the menses, exactly twelve months after the delivery, and which were ushered in with fever, pain and nausea, followed by great prostration. These phenomena had been repeated with more or less violence for more than three years. When I saw her she was pale, nervous, hydræmic and prostrate. The menstrual flux had just ceased, and the stomach was in a most irritable condition, although the nausea attending the period had abated. The pulse was small and feverish, and the eyes presented the glassy glistening appearance of the consumptive. Auscultation and percussion, however, revealed nothing save the anæmic souffle of the veins in the base of the neck. An uterine exploration revealed a most marked anteflexion; in fact I think it was the most complete one I have ever seen, as the fundus of the uterus could be felt jamming the bladder

down under the arch of the pubis, and which of course gave rise to great vesical trouble; the distance between the superior margin of the cervix, and the fundus bent above it, could have hardly been more than an inch. The introduction of a Sims speculum (small blade) gave rise to great pain, (of a similar character experienced years before when sexual congress was attempted), but she bore it with the patience of a martyr. There was no difficulty in making the diagonsis, and an operation was advised, but as the patient was not prepared to remain in the city, having come from the upper Missouri river, it was deferred until the next period, which came on rather unexpectedly, about the 10th of August, and continued with the same aggravating symptoms for three or four days. She returned to the city on the 17th of August, and the bowels were cleared with a dose of oil on the next day.

On the morning of the 19th, (after the administration of chloroform), I operated for the first time by the antero-posterior bisection of the cervix and the quadrangular sections of the internal os. The position of the patient is the same as in all of these uterine sections, viz: in the left lateral semi-prone one.

The neck of the uterus was hooked up by the double spring-tenaculum, and the scissors cuts made in the median line, both anteriorly and posteriorly, through the cervix to the utero-vaginal junction, a block-tin sound was passed through the posterior wound, and the knuckling divided at a depth of about two lines, the hemorrhage was not profuse, the blood being mixed with a considerable quantity of thick, ropy mucus. The parts were well sponged, and the internal os was nicked posteriorly and on either side. The glycerole-iron cotton plugs were introduced, and the same dressings applied as in the other cases, with the exception of the addition of a little tannin (about five grains) with the glycerine, for the purpose of overcoming the exquisite sensitiveness of the vaginal surfaces. The patient

did well during the day, and as opiates made her sick, a tablespoonful of Parrish's camphor mixture was administered to restrain the bowels, and thirty grains of the bromide of potassium to control nervousness. She slept eight hours as the result. The dressings were continued from day to day, each one becoming less painful, either from the tanno-glycerine, or from the continued use of the bromide, or from the absence of the acrid uterine discharge, or from the uterine sections. Possibly all combined to the same end. The sound was daily passed after the plugs came away from within the internal os, and the wounds were well kept open. Prior to the operation, only the smallest uterine probe, bent in a semi-circle in order to take the sweep of the axis, could be entered with difficulty.

The menstrual flux appeared on the evening of the 30th, rather sooner than expected, but without the least indication of pain; it was free, and continued until the fourth day. On the morning of the fifth day afterwards, I passed the cottoned-probe saturated with chromic acid, over the whole mucous surface of the cavities of the body and neck, and the use of hot water was vigorously applied by means of the uterine douche. About this time, cholera was raging most fearfully, and as some of my own family were stricken down with it, this lady became so much alarmed that she left suddenly for her home. I heard nothing of her for more than a month, when her husband called on me, overjoyed with the result. She had menstruated a second time without pain, and sexual congress was normal. This patient did not menstruate the third time, as conception took place. She was confined with a healthy female child on the 27th of June, 1867, after a very easy and rapid labor.

The history of this case and the phenomena presented, were of a peculiar character, and the operation and the reasons of its performance are worthy an elaboration.

With regard to the neurosis (spasm) of the vagina which this patient presented, the profession is undecided. The elder Burns attributed it, and probably was correct in the

main, to a diseased condition of the vaginal plexus of nerves. Scazoni is not very clear on the subject. In his practical treatise on Gynecology, he says, "in the majority of cases where we have met with vaginal spasm connected with the local affections just named, (spasmodic affection of the urethra, of the bladder, of the rectum), the presence of hysteria was not doubtful; which, however, is not astonishing, for we know that this neurosis is often due to a long irritation of the genital parts." Graily Hewitt states that "the most important element in the case, and that which is first in order of occurrence, is usually a morbid exaltation of the nervous sensibility, generally dependant upon defective bodily nutrition, or too great cultivation and use of the psychical faculties. This affection is particularly prone to occur in women of cultivated intellect, of high mental endowment; and is rare among women whose bodily powers are called into more frequent and active exercise. These considerations find an important application in practice." Sims is disposed to believe with Burns, when this spasm of the vagina or "vaginismus" is not traceable to altered conditions about the uterus, bladder, urethra or rectum, and which frequently exists *sui generis*, and for its treatment he advises a section through the vaginal walls from the perineal raphe through the fourchette, and on either side towards the junction of the nymphæ and labia minora; and afterwards to keep the parts distended by a glass plug, and in the cicatrizing process following, the spasm is overcome, on the same principles which govern all cases of myotomy.

Dr. Ferguson in his Prefatory Essay to the edition of Gooch's writings, published by the New Sydenham Society, pp. 23 and 24, says that in cases of irritable uterus "one of the seats of this neuralgic malady is in the vagina itself. which is so exquisitely tender as to render intercourse intolerable." Thus we see that the phenomena above described, though very unusual, have been recognized by most of the obstetricians and gynecologists.

I would particularly refer the reader to Sims's graphic account of the affection, as presented in his Clinical Notes on Uterine Surgery.

In the case before us, this vaginismus was concomitant with, and probably depended upon the anteflexion; however. the cure of the uterine deformity induced a healthy functioning of the vagina. Did the vaginismus result from inflammatory action coexistent with the peritoneal fever of child birth, or was it a sequitur after the anteflexion was established, and which produced altered anatomical relations of the genital apparatus? The uterine rectification after an operation, being followed by a cessation of vaginismus, evidently pointed out that the anteflexion was the cause. Previous to the operation I expressed hopes to her medical attendant who accompanied her to St. Louis, that the antero-posterior bi-section of the uterus might relieve the vaginismus, and my anticipations were fortunately realized.

With regard to the antero-posterior bisections of the uterus for anteflexions and retroflexions, I reason upon anatomico-physiological data as affecting pathological conditions.

In some later operations made for anteflexions, and which were done according to the method of Emmet, where the fibroid interstitial and inter-cellular deposit was not altogether removed from the cervix, have induced me to always make these antero-posterior bisections. In Dr. Emmet's hands, his method has been all that could be desired, but in the unmarried female, where conception is not an anticipated result, thus far I have not been disappointed by an extension of the operation of that distinguished New York Surgeon. When a flexion of the uterus exists, three sets of muscular fibres are deranged, viz: the longitudinal ones of the body, the decussated ones about the internal os, and the circular ones of the neck. Hence, that the bent contracted longitudinal ones should be straightened, their complete involution requires a contraction by cicatrization of the opposing relaxed fibres, the

result of sections, and lest the decussated fibres about the internal os, should act irregularly and pull as it were, the old formation back again, they should be negatived by a free division; and, finally to promote absorption of the fibroid deposit, the cervix should likewise be well divided. These divisions of the muscular fibres of the uterus, conjointly made, tend, with the dressings applied, and the maintenance of the canal patulous by means of a plug and sound, to *normalize* the misshapen axis. In fact, Sims, Simpson, Greenhalgh, Barnes and Baker Brown rely greatly upon simple sections of the cervix to promote absorption throughout the entire uterus.

Every Surgeon is aware of the deformities of the muscular system generally being frequently remedied by division of the muscular fibres, and I believe uterine flexions *in se* to be vicious muscular action, dependent upon degeneration of the fibre itself, either by the deposit of fatty matter, or they are caused by aneoplasm, acting mechanically, such as a tumor in or on the uterus, or the surrounding tissues. The latter class of necessity produce the former. I have in a former paper* entered more fully into the philosophy of these sections; and will not repeat it here, but will explain why an antero-posterior bisection should have been made in CASE III. of this RÉSUMÉ, rather than the bi-lateral operation which was made.

In all cases of ante-flexion, or rather, in all cases where the neck is divided the cicatricial wounds tend to hold the canal in a line with the axis of the incisions; and, as such a mechanical result is always desirable, in the case referred to, a bilateral section, unless it would thoroughly promote absorption of the fibroid deposit of the neck, could hardly be supposed to reach the result desired, from the fact, if the flexion should persist, the bending of the neck upon the body, or *vice versa*, would not separate the wounds, whereas an antero-posterior bisection would tend towards such separation because

* PRIZE ESSAY, On the treatment of certain Uterine Abnormities.

the greater the flexion the less the correllation of muscular action, and, as a consequence, the relaxed divided circular fibres of the cervix are pulled from each other, and not bent upon each other.

In Case III., this was in a measure obviated by the double action of two sets of opposing muscular fibres, viz: the contracted fibres on the anterior neck and body, and the partially contracted fibres of the posterior body, making the canal somewhat sigmoid in shape. However, the simple sections in this instance, were fortunately sufficient, but I am disposed to believe that in all such cases, wherever any flexion exists, either anteriorly or posteriorly, a median bisection will produce the more certain and permanent results.

To state that all these operations will positively cure all of our patients, is simply absurd. We sometimes fail, but as to the superiority of these sections over all other methods, there can be no doubt. Whatever result was obtained in my hands, successes or failures, will be given in full as I go on with this RÉSUMÉ.

(TO BE CONTINUED.)

THE OPERATION FOR VARICOCELE SIMPLIFIED AND IMPROVED, by A. HAMMER, M.D., Prof. of Surgery, Ophthalmology and Pathological Anatomy in the Humboldt Medical College of St. Louis.

An important principle in the practice of Surgery is to make use of the simplest means possible, to the accomplishment of a desired end. The less numerous and the less complicated the instruments employed, the better, and it is sincerely to be hoped that the now formidable *armamentarium chirurgium* may be cut down to one third its present dimensions, and even then it will be larger than is absolutely necessary.

In keeping with this idea, I have, in the operation in question, substituted a simple wire suture in place of the complicated contrivances of the "authors." A straight or semicurved needle and a piece of wire a foot in length—both to be found in every general operating case—are all that are required.

The steps in the operative procedure are briefly these: The vas deferens should be carefully isolated from the other structures making up the spermatic cord, and a wire-armed needle passed through the interspace thus made between the deferens and remaining cord-tissues, from before backwards, about an inch above the head of the epididimis, and thus the two walls of the scrotum will be transfixed by the wire. The pressure may now be removed from the vas deferens, and the scrotum drawn outwardly so that the two stitch-wounds will be outside of the external margin of the entire cord, which wounds will be brought in close proximity, in fact cover each other, if the inner surfaces of the scrotum are pressed together. The needle, still armed, should now be repassed, from behind forwards, and through the same wounds already made, in such manner as to subcutaneously include in the wire loop thus formed, the bundle of varicose veins. The ends of the wire now appearing from the same opening at the front of the scrotum, are to be seized by a pair of strong forceps and twisted with just sufficient force as may be necessary to close the lumen of the inclosed varicose veins. At intervals of every three days, another twist may be given to the wire, and usually, at the lapse of a fortnight, the loop cuts its way through the venous tumor and is easily removed.

I have frequently, within the last eight years, operated in the above described manner, and with uniformly good success. Experiments with silver, iron and copper wire, have caused me to give preference in favor of the latter, but, whichever may be used, care should be taken that it be well annealed, lest being brittle it break. Such an accident happened to me twice, the little wire loop breaking square off from

its neck and remaining within the scrotum, a circumstance unpleasant to the surgeon, but of no serious consequence. In my first case, the little wire loop thus broken off, became encapsulated, and remained as an inoxious foreign body, which could be distinctly felt, but it gave rise to no trouble, otherwise I would have removed it. In the second case it was eliminated with the puriform secretion—which is more or less present in all cases a few days after the removal of the wire—having been saved by the patient in order to show it to me.

In several cases, I applied *two* wire loops, half an inch distant from each other, that portion of the vessels between them becoming transformed into a hard fibrous cord. I, however, observed no peculiar advantage in this plan, as the single loop was never in my experience followed by a relapse of the affection, and thus I now employ but a single ligature.

The inflammatory action was not marked, even in those cases which for experiment's sake were allowed to be up and about, the testicles meanwhile being supported by a suspensory.

Here at the West, this operation, according to my method, has been successfully performed by other surgeons, to whom I had communicated it personally, or who had heard me describe it before the St. Louis Medical Society.

I hesitated before giving publicity to the above, thinking it but a small matter, and also because I was wanting in the ambition which seems to prompt so many to appear before the public with every trifle. I was induced however, to lay aside my modesty by the remembrance of a single instance, which was this. Some seven years ago I had materially modified and improved the operation for entropion and trichiasis as advised by Iaesch and modified by Arlt. My improvement consisted in a simplification, and, what is more, important, in removing the danger of gangrene, so often supervening after other methods of treatment. I had thus operated

not unfrequently before professional brethren and classes of medical students,—and with unvarying success,—but I had unwittingly neglected to incorporate it into the medical literature of the day. Not so, however, with a certain surgeon who two years since published, as original with himself, my identical modification, which I had repeatedly, for five years preceding, practically executed, and a description of which I had given to the Medical Society of this city. It is probable that the modification was original with the surgeon in question, and I am far from charging him with plagiarism. Certainly to him is due the credit of being the first to publish it, and the fault rests solely with myself. I trust nothing further is necessary in extenuation of my publication of what may seem to be a minor affair.

ART. III.—CEREBRAL CONGESTION IN CHILDREN. BY EDWARD MONTGOMERY, M. D.

Editors of the Medical Archives:—

As we are now nearly through with another season, during which the mortality amongst children is generally so great, indeed so startling, as to have called forth the comments of the daily newspapers, permit me to say a few words with regard to one of the prevailing summer affections of children, to wit: Cerebral Congestion; reserving for a future occasion some remarks on Tubercular Meningitis, "*Teething Brashes*," Diarrhœa, &c.

If we examine the burial certificates furnished the Board of Health by the practicing physicians of the city, we will be astonished at the great number set down as cases of Eclampsia, Convulsions, Congestion of the Brain, Brain Fever, Inflammation of the Brain, and Spasms; all these different names given to designate the same pathological condition. The great frequency and prevalence of this disease, and its

sudden and fatal accession and termination, induce me to place it first on the list of the series, to which I design, with your permission, to devote a few observations.

It is a lamentable and notorious fact, that people are so prone to delay, and defer calling in medical aid in cases of sickness of all kinds. In Cerebral Congestion this delay is doubly dangerous, because of the violence and rapidity of the diseased action, and of the pre-eminently vital organs involved. Remedial measures, to do any permanent good here, must be employed at the earliest moment, or structural lesion and organic change will be produced, which will render all our efforts nugatory.

As already intimated, Congestion of the Brain is generally ushered in suddenly; in the summer season it is often excited by solar heat, by the irritation accompanying dentition, and by the sudden arrest of a diarrhœa by opiates and powerful astringents and stimulants. The presence of worms, and a stomach overloaded with unsuitable and indigestible food, may also excite it. It is also frequently the result of a fall or blow on the head, and may occur during the progress of Intermittent, Remittent, or Scarlet Fever; indeed in the incipient stages of Scarlatina and Small Pox, and during the progress of Whooping Cough, it is not at all infrequent, and is a symptom of dire import. I believe it is a very general opinion among physicians that the little patient with Scarlet Fever or Whooping Cough, if this complication ensues, will almost certainly die; in the incipiency of Variola it is not of such dread importance.

The symptoms of Cerebral Congestion are fever, restlessness, hard quick pulse, starting, easily frightened, distress at noise or strong bright light, pain of the head, throbbing of the carotids and temporal arteries, and if the child is young, at the fontanelles; knitting of the brows, frowning, frequent raising of the little hands to the head, vomiting, bowels generally costive, twitching of the muscles of the face and of the tendons of the hands and feet; although generally drowsy,

the sleep is broken and disturbed, the child awakening frightened and often with a wild scream; indisposition or disability to hold its head up; in the beginning the eyes clear and pupils contracted, in the advanced period the conjunctiva injected and the pupils dilated; there is great mental disturbance, convulsions, and if not relieved, coma and death.

In this disease a complete and happy recovery may take place, or it may be prolonged until organic and functional lesion ensues, and paralysis or perverted action of one or more parts of the system is the result; or death in a few hours may close the dreadful scene.

When excited by solar heat, cold sponging, freely and perseveringly applied, plenty of fresh air, refrigerants, the nitrous powders, spirits minderira, phosphate of soda, bisulphate of potash, &c., will be all that will be required to conduct the case to a successful termination, unless it has gone too far for any measures to avail.

When occurring during dentition, the gums should be frequently examined, and when found inflamed and swollen, freely scarified, and this operation repeated as often as found necessary; a warm or tepid bath, containing salt and mustard, two or three times a day; pure air, mild bland food, mucilagenous drinks, healthy and airy apartments, an occasional dose of the hydrarg. cum creta, magnesia et rhei, soda phosphas et carbonas, bromide of potassium, fluid extract of uva ursi, &c.

When resulting from the injudicious or improper use of astringents and stimulants, refrigerants and mild unirritating aperients will be demanded; always remembering to apply cold sponging to the head, and if much congestion, leeches to the temples and nucha, and mustard poultices. It often happens when a child has a diarrhœa or dysentery in the summer season, the mother becomes so urgent and anxious to have the profluvia arrested, that she impels the medical attendant to forego his better judgment, and yield to her

solicitations, give some powerful astringents and opiates. The intestinal flux is suddenly arrested, but an alarming metastasis to the brain is the deplorable consequence.

In cases where the disease is believed to have its exciting cause in a stomach overloaded and distressed with unsuitable and indigestible food, the employment of an emetic of Ipecacuana, followed by a dose of Castor or Sweet Oil, will be necessary; combining also the topical treatment to the head, and the hot water and mustard baths to the extremities; we must however be absolutely certain that the *fons et origo* is an overloaded or distressed stomach, before we have recourse to emetics. as these would be dangerous appliances in other cases.

In cases occurring during the existence of whooping cough, one or two leeches to the nucha, and slight counter irritation along the spine, with the internal administration of Bromide of Potassium, Belladonna, and the Sulphate, Lactate, or Oxide of Zinc, will in my opinion afford us the best means of obviating the tendency to death.

Cerebral Congestion and convulsions occurring in cases of Small Pox and Scarlet Fever, must be combatted promptly and vigorously; for "desperate diseases, by desperate remedies only, are relieved." Here the congestion is so great, or the cerebro-spinal irritation so severe, aggravated no doubt by the deleterious changes produced in the blood in these exanthematous fevers, that very violent convulsions are very apt to occur, which if not most vigorously treated will culminate in coma and death. Venesection, cups or leeches must be promptly and efficiently employed, and repeated if necessary. Hot mustard baths, and warm diaphoretic drinks will be appropriate to assist in relieving local hyperæmia, and to throw out the eruption. Here of course refrigerants, purgatives and saline aperients are contraindicated; whilst small doses of the mild chloride and dovers powder, or hyoscyamus, belladonna, cannabis indica, &c., with diaphoretics and mild diffusible stimulants, will tend to promote a favorable issue.

Cerebral Congestion arising from local injury, must be treated with leeches and cold applications to the inflamed or congested part; hot mustard baths to the extremities, and the internal use of mild aperients, diuretics and refrigerants, keeping the patient quiet in a dark, well ventilated apartment, and allowing very little food or drink, and that of the mildest and most unstimulating character.

Of course, if there is fracture or depression of any portion of the cranium, the serious attention and probably the operations of the Surgeon will be required.

There is one class of cases of Cerebral Congestion to which it may be well to advert; I allude to those arising in states or conditions of the system bordering on exhaustion. Examples of these asthenic or passive cases, are met with in the advanced stages of many acute diseases, as fevers, Cholera Infantum, Diarrhœa, Dysentery, &c. Our city physicians are called upon time without number, to prescribe for children who have been suffering for weeks or perhaps for months with a teething brash, a dysentery or a diarrhœa; the little patients will be found with their heads hot, rolling them about, pulling at their ears and hair, the conjunctiva injected and the eyes half open when asleep; the sleep very much broken, disturbed or almost wanting, or there may be screaming and even spasms. Notwithstanding this formidable array of symptoms, we must not rush into a heroic treatment; we must not bleed, purge, give emetics, or antiphlogistics, mercurials or sedatives; but we must endeavor to restore and maintain the strength and integrity of both organs and functions; promote an equilibrium of the circulation and aid the powers of digestion, absorption, assimilation, &c., by easily digested and nutritous food, diffusible stimulants and tonics, and a most propitious hygeine. The passive congestion may be attracted from the brain by blisters behind the ears or to the nucha, and the valerianate of ammonia, the lactate of zinc, the extract of quassia, gentian, cinchona or logwood administered in frequent small

doses. It is more than probable that alcoholic stimulants and medicated tinctures do much more harm than good in these cases. Stimulating frictions, proper warmth, strict cleanliness. pure air, suitable and nourishing food, small blisters to the nucha or behind the ears, and the non-exciting tonics above mentioned, will afford the most favorable chance for a happy convalescence.

It is sometimes a matter of nice discrimination in diagnosis, to determine whether we should treat a given case as a sthenic or an asthenic disease, but if we survey the whole ground, examine the antecedents, scrutinize all the signs and symptoms, and have especial regard to the length of time the little sufferer has been sick, we can have but little difficulty in forming a true and wise opinion and in directing our treatment accordingly.

Before quitting the subject of cerebral congestion, I wish emphatically to call attention to the vital importance of using *early, prompt and decisive* measures in these diseased conditions. The sudden and violent accession of the attack, or the force of the convulsions, may in a very short time produce irreparable mischief. Vigor, celerity and thoroughness should characterize our treatment; no half-way measures, no expectant plan will do here, where the issues of life and death are in a great measure in our hands. It is sad to reflect that so many children are yearly carried off by disease, that might have been rescued, by prompt and timely treatment, from early graves. But to lessen this great mortality, parents and guardians must do their part; they should send for the physician at the earliest moment, and be instructed and directed by him as to the best means of prevention and remedies.

If we allow our children to be exposed to the hot noonday sun and the cold damp air of night, suffer them to be kept in close, noxious hovels, with filth, bad food, and neglected diarrhœas, we may expect them to sicken and die; but if wise sanitary measures and early scientific treatment be adopted, the mortality will be wonderfully lessened.

St. Louis, 12th Sept., 1867.

HEALTH AND DISEASE.

SECOND LECTURE ON PATHOLOGICAL ANATOMY. Delivered on the 16th of August, 1867, to the Medical Profession of St. Louis, by A. HAMMER, M.D., Prof. of Surgery, Ophthalmology and Pathological Anatomy in the Humboldt Medical College of St. Louis.

GENTLEMEN—

In my first lecture I have defined my position in rough outlines, with regard to the Mechanical Forces and Vital Force or Life itself. We will now proceed to consider the manifestations of life in contradiction to the phenomena in the inorganic world. Life can only spring from a living body. Plants owe their existence to plants, animals to animals. Plants are generated from seeds, animals from eggs. For the sake of brevity I will only say so much of the vegetable kingdom as is absolutely necessary, and will chiefly confine my remarks to animal life. Formation of an animal from the egg, the subsequent growth and development of the individual, the nutrition and self-maintenance of the organized body, the production of a substance (ovulum) out of which another new individual may be generated, (propagation of the species), and, finally, the decay of the organism (death of the individual); these are the characteristics by which the organic world is distinguished from the inorganic.

The egg is produced and furnished by the female. The organism is generated (in reference to the higher orders of animals) in peculiar glandular organs, (the ovaries), forming a part and parcel of the mother's body itself. The egg is, morphologically speaking, a cell, endowed with the peculiar property of developing out of itself a new organism under certain circumstances. The egg, a living organism in an organism, performs all the offices of a cell, with the exception of proliferation or multiplication. The egg after having reached its maturity, will die as such, without giving rise to an organism, unless it is acted upon by an exciting cause. This

process of exciting the egg by arousing it to a peculiar action. is called "fecundation." Though the egg, a living cell, is endowed with vitality, yet its vital power cannot be called into action except by contact with another living substance, which is prepared and furnished by the male organism—the semen. The vitality of the egg, therefore, must be looked upon as life in a dormant state. Now what is fecundation? The act of fecundation (copulation, especially in the human species), from ancient times up to our own days, was looked upon as a sort of mysterious process, wrapped in a cloudy tissue of superstitious notions and supernatural peculiarities. You know the stories about the *aura seminis*, on the part of the male, and the *aestus veneris*, on the part of the female. You know likewise, how much importance was attached, in this respect, to love and indifference, diversity of temperament in the parties engaged, the condition of mind during the act of copulation, &c. Since we have learned from the records of the Criminal Courts that fecundation has taken place while the female was in a state of total unconsciousness, that she concieved without having seen the copulator; and since we have experimentally learned that by injecting the semen into the uterine cavity, conception has followed in the absence of the male from whom the semen was furnished, we are compelled to consider this process a very prosaic procedure, entirely destitute of supernatural garb and pœtic hue. I, by no means, intend to spoil the romantic imagination of young love matches, but am compelled to analyze a fact in a manner becoming a sober-minded naturalist. If we speak now of fecundation, we may safely leave out the male and female as individuals, we may safely drop the idea of a necessary personal union of two individuals of different sexes, and may with propriety substitute the contact of one cell (the spermatozoon) with another cell (the ovulum). The spermatozoa correspond to the nuclei of the spermatic cells generated in the testicles. The semen is a colorless, muco-albuminous fluid of some consistency, containing cells of considerable size.

The contents of the cells are a homogeneous-looking fluid and filaments, the spermatozoa, which are but transformed nuclei of the cells. The spermatozoa are the proper impregnating agents, which, after having reached the uterine cavity, travel along through the fallopian tubes, and even to the ovaries themselves, and penetrating into the membrane of the ovulum, so as to get into immediate contact with the contents of the ovulum. These seminal filaments, so far as our knowledge at present goes, *do not become a part of the new organism.* As soon as the contact between the spermatozoa and the ovulum has taken place, a new phenomenon appears in the ovulum, a proliferating cell-forming process, cellulation. The ovulum, which, prior to fecundation, was a cell with homogeneous contents, becomes now a vesicle filled with uniform cells, embryonic cells, which in their turn, after the first rudiment of the embryo with its three layers, or membranes, the ectoblast, meso-blast, and endoblast, has made its appearance, begin to become differentiated, that is, a large amount of uniform cells undergo such a change in course of time, that some of them become transformed into blood-corpuscles, others into blood-vessels, others into nerve cells and nerves, others into muscular tissue, others into cartilage, bone, etc. Thus we see that the ovulum, containing neither bone nor cartilage, neither blood nor nerve, neither muscle nor tendon, developes out of itself all these different structures, which are formed in accordance with the prototype either of the mother, or of the father, or of both, in various combinations. Now, wherein does fecundation or impregnation consist? The only satisfactory answer which we can give, provided we do not intend to overstep the bounds of sound naturalistic investigation, is, that it is a chemico-catalytic action. Much objection has been raised against such a prosaic and naturalistic conception of the "sublimest of all earthly phenomena" by the Transcendentalists.

The fact that common kitchen salt, chloride of sodium.

crystalizes in cubes, is known everywhere. The fact that kitchen salt in the act of crystalizing, assumes another than the cubic form, if there has been added to the solution a little of another salt which does not in any way change the chemical composition of the kitchen salt, is likewise every where known. Here we have the strange phenomenon, that the mere presence of a foreign body in a solution of another body, solely in virtue of its contact, and without inducing any change whatever in the way of decomposing or combining, is sufficient to bring about a change in the process of crystalization. The explanation is not easy, and can only be given by an hypothesis, viz: that the second salt changes the molecular motion of the chemical atoms of the first salt, in such a manner as to give rise to a mode of their aggregating themselves different from that which takes place in the absence of the second salt. This physical phenomenon is called "catalysis" by the chemists, and the instances in which catalysis makes its appearance are not very rare. Nobody, even not the Transcendentalist, objects to this denomination, and they acknowledge catalysis to be one of the physical laws. Now, I ask, do they understand the true nature, the ultimate cause of the catalytic process, better; in the instance which I have adduced, than we believe we understand it when taking place in organized matter, as in the act of fecundation? Not one iota better! Therefore it is, in my opinion, not worth while to enter into any argument with them. Until it shall be evidently proven that the spermatozoon really forms a part of the fœtus, so long the idea, that fecundation depends upon calalytic action, will be the only reasonable one.

I have already stated, that so soon as cellulation, following upon fecundation, is started, it goes on and continues until the new organism is so completely developed as to maintain itself independently of the maternal organism, the growth and development of the fœtus occurring, however, in full accordance with the parental prototypes. This accordance, however, is not only limited to the general

character of the species of the animal, but likewise applies to the individual qualities, properties, and propensities of the parents in every respect. Let me illustrate this. As a matter of course, a mare, fecundated by a stallion, will have no other offspring than a colt. This is plain enough. But the colt follows either its mother or father as to color, size. frame, strength, docility, gentleness, &c., or it will possess some of those qualities in direct line from its father, for instance, size and frame, while the rest of its qualities correspond with those of its mother. What holds good of the qualities which are so very accessable to our direct sensual observation, likewise holds good of those qualities which are more concealed. No one wonders at the fact that a child has the nose of its father, the hands and feet of its mother, the length and form of the body of its father, and the mouth, eyes and hair of its mother; or, that a child should entirely follow the type of the father with, perhaps, the exception of the nervous system, which might manifest its direct descent from the mother, by displaying all the peculiarities of the maternal mental functions.

But there are other and more striking features in connection with parental inheritance.

For instance, I knew two families, the fathers of which reached the age of eighty years, and every son in these two large families outstepped 76 years, although nearly every one of them pursued a different trade, and kept up a different mode of living. Longevity was the enviable prerogative of these families. Similar and more numerous instances proving the reverse have come under my observation, in which all the children had to abide by, and to share the sad fate of their parents, e. i. to die prematurely after having enjoyed apparently perfect health up to a certain age. One very remarkable instance of similar hereditary disposition, occurred in a highly distinguished family of my acquaintance. The father died when 65 years old, and all his sons, five in number, died at exactly the same age. Was this a mere

coincidence? I am not able to answer. But, at all events. facts of this kind should attract our attention. I do not hesitate to draw one conclusion from it; that is, that such individuals, from an inherent amount of vital power (call it power of resistance, or self-maintaining power, or whatever you please) transmitted from the parents in the act of impregnation, can, if all accidental disturbances are entirely avoided, live only a given time, this space being the proper exponent of the exact amount of vital power inherited. I hope I shall not be misunderstood, inasmuch as this might give rise to the suspicion that I believe in Predestination. A little calm reflection will remove any such suspicion. The offspring is inexorably bound to be limited in accordance with the *quality and quantity* of motion produced in the blastema of the ovulum, endowed with the susceptibility of being aroused to motion during the act of fecundation. This is what I meant. It is patent that as the frame, size, features, mental faculties, etc., are inherited from the parents, exactly in the same manner other qualities, which have no immediate external expression, are transmitted from parents to children. Medical records, in the long list of diseases, will prove this assertion in the large chapter of Hereditary Diseases. And can it be otherwise?

We come now to one of the most interesting points in Biology, which closely bears upon our subject proper, pathological anatomy, viz: *how, in what manner, and by what means*, are the diseases transmitted from parent to offspring?

As already stated, there is not a trace of tissue present either in the contents of the ovulum or in the spermatozoon. The ovulum, a cell, an elementary unit of life, forms a part of an organism containing so many different organs, which organism likewise owes its origin to such an elementary unit. The ovulum, this simplest form of life, is but the reflexion of the entire organism, no matter how simple or how complex this may be—it is a microcosm in a

macrocosm, endowed with the power of generating all the specific peculiarities of the latter. The spermatozoon is not a cell, but only a part of a cell, the nucleus of the spermatic cell. As the ovulum is the reflexion of the maternal organism, so is the spermatozoon the reflexion of the paternal. Both, by coming in contact, engender motion, resulting in the formation of a multitude of new cells. These cells, in their innermost nature, are again the reflexion of the paternal or maternal germinating cells, or of both, in various combinations. Diseases, therefore, can only be transmitted from parent to offspring by being transmitted from a cell to a cell. This transmission, however, *particularly as far as inheritance from the father is concerned*, does not consist in introducing morbid matter into the ovulum, but solely in inducing a specific chemico-vital process in the new cells and the tissues to be built by them, in virtue of which the new organism will be endowed with the individual characteristics of the generator. The indifferent embryonic cells disappear as the completion of fœtal developement progresses and cease to exist at the end of gravidity. Disease shows itself (and cannot do otherwise) by producing in them changes deviating from the normal action. From this it will become evident that, through the act of fecundation, diseases cannot be transmitted, but merely the predisposition to such. Such predispositions may remain latent, under certain favorable circumstances, through life-time. The fact, however, that a child may inherit a disease, from which his father or mother did not suffer, but to which the grandfather or grandmother were subject, evidently proves that the father or mother possessed at least the inherited predisposition to the disease, which they in their turn transmitted to their offspring, upon whom the predisposition clearly manifested itself, by establishing disease. Innumerable instances illustrating this fact are to be met with every where and at any time.

But this is not all. You must remember that the catalytic action is not ended in the organism with the catalytic action

of fecundation. This susceptibility, irritability or excitability (no matter about the name), of being acted upon by an impulse or excitor, persists in every cell throughout the whole life of the organism. This excitor may have been generated either within the organism itself, or may have been introduced from without. In fact, we cannot help considering the process of life (all the manifestations of life) as depending upon an uninterrupted fecundation of the cells, a catalytic action of one cell upon another, or, if you like better, a continued irritation.

Each individual cell in the body, though an independent organism in itself, and subservient to the welfare of the whole, is dependent upon the condition of the total amount of cells making up the body; and so, on the other hand, is the welfare of the whole dependent entirely upon each single individual cell.

Here we might raise the question "What is health?" Health consists in the persistency of harmony between each single elementary unit (cell) and the totality of all the elementary units in their peculiar arrangements into the various organs which constitute the organism, thus showing constancy in the regular succession of vital phenomena, in perfect accordance with the natural laws.

From this you will see that health, in the usual acceptation of the term, is but a "relative idea," and that in reality we would scarcely ever meet with one healthy individual out of millions and millions. All other definitions which you usually find in treatises on pathology, are incorrect, or at least deficient.

And now I should think that it would not be difficult to make out what "Disease" is. However, before attempting to give a definition of disease, let us see what ideas have been entertained about it up to our time. Disease was considered to be something in itself, a body, an entity foreign to our organism, which, invading our system from without, selected one particular part of it for its seat or residence, from which

it opened the campaign against the whole organism, in order to conquer and destroy it. Thus we see a personified agent. The seat of the disease was supposed to be either in the Humors or in the Solids, and so, two diametrically opposed systems of Humoral and Solidistic Pathology were created. The Humoralists, in course of time, substituted for humors (or juices) the "noblest juice," the blood, and the Solidists showed peculiar predilection for the noblest of the solid tissues, the nervous system.

Even in former days, prior to our knowledge of the histological genesis of the different organs, such one-sided views could be easily demonstrated to be futile, by the well known fact that there is no absolute antagonism between the solids and the fluids, the difference between them being simply relative.

In our days we can demonstrate by means of Embryology and Histology, the utter untenability of these doctrines. We have already known for a long time, that in the ovum life exists long before either blood or nerve is formed, and that this life is manifested in uniform elimentary units, the Embryonic cells. We know that these cells are the common matrix for all the tissues which in the complete child make up the entire organism. It is therefore natural to conclude that the Embryonic cells occupy a higher rank in the scale of supremacy than their direct offspring, blood or nerve.

We now know also most positively that cells persist, as such, in every tissue, no matter how great the differentiation may be, and that function, nutrition and regeneration of such tissues are mainly owing to those persisting cells. For this great discovery (and so I call it) we are indebted to Mr. Virchow, who, by making out the existence of cellular elements (connective tissue corpuscles, as he called them), has filled a great gap in our histological knowledge. There was a large class of tissues of which we had no precise understanding in regard to their mechanism of function, nutrition and regeneration. These obstacles have been removed

by Mr. Virchow, and it is the unenviable privilege of others to avail themselves of this discovery, and to build new theories upon it, without giving due credit to the discoverer. Beale's Dogma of "germinal matter" and "formed material" is but an ill-digested conception of the important facts revealed through Mr. Virchow. And fifteen years after the discovery made by him, Beale offered to the world, under the garb of a new nomenclature, the same thing, as the production of his own genius!

I shall not, for the present, enter into all the arguments which have been, and still are, set forth pro and contra, in regard to Humoral and Solidistic Pathology, as I shall have to touch them in almost every one of the subsequent lectures. This much, however, I may say at this place: the *Ontological* as well as the *Teleological* character of disease, is without foundation.

Disease is no entity. All manifestations of disease are the necessary results of the same chemico-vital process, which we observe in the physiological state of the organism in health, and the difference in the manifestations in a healthy and in a diseased organism, solely depends upon a change of the conditions under which the organism is put, the mechanical forces and the vital force remaining unchanged.

The definition of disease naturally follows from the above remark. Disease is physiological life under altered conditions. This shows us the way and direction which we have to follow, if we intend to gain a sound knowledge of disease in every instance. We have to study the various alterations in the conditions of physiological life; we have to build up a pathological physiology. Taking this view of disease, it will be obvious, that one and the same cause, (change of conditions), in accordance with its intensity or extent, or with regard to the special organs upon which it operates, will give rise to quite a variety of symptoms,—and again, vice versa, that one single morbid symptom may be produced by many different causes. The next conse-

quence is, that all nosological systems of to-day, will have, in course of time, to be overthrown, and an entirely new technical nomenclature will have to be created—for, it is not disease any more, which we have to cure, but certain *conditions*, which we have to remove, in order to restore the normal play of forces in the organism. The forces which call into existence the phenomena of life in all its phases, are the same which bring about the manifestations of disease. The substratum upon which life makes its appearance, is, as you will recollect, the cell: consequently, the substratum of manifestations of disease must be the cell. But as the whole body is, without exception, made of cells, every particle of the body is the seat of disease (if you will insist upon a special seat), and not alone one or the other of the tissues. So you can understand Virchow's aphorism "The *focus of life is the focus of disease.*" It is one continuous chain of logical links to which the new doctrine of "Cellular Pathology" is attached. I believe it to be superfluous to say one word more in justification of the claim of this doctrine to supremacy over all others. The terms, "disease of the blood, bones, nerves, muscles, glands," etc., in our further discussions, are by no means significant of inconsistency on our part, for all these tissues rest upon cellular origin and cellular persistency. This remark is only made to avoid misunderstanding.

The branch of Medical Science which treats of the functions of the organism, which points out the mutual dependence of one organ upon another, and which establishes the laws by which these functions are governed, is termed "Physiology." The knowledge of a function presumes the knowledge of the substratum upon which function manifests itself. The knowledge of Anatomy is indispensable. It is, however, not sufficient to know the coarse structures composing the organs, in order to gain a clear understanding of the functions, but a very thorough acquaintance with the Anatomical Elementary parts in all their various phases of

development and metamorphosis, and with the chemical substances composing them, is absolutely requisite.

Minute Anatomy, therefore, comprises a morphological and a chemical part,—both may be termed "Physiological Anatomy."

The definition of Pathological Anatomy is in the foregoing already given.

Physiological function is the result of physiological (normal or healthy) condition of the chemico-anatomical component parts of the organism. A change in these conditions will necessarily produce a change in the functions. We logically conclude from this, that wherever we meet with functions deviating from the normal physiological character, there we will find changes in the component parts of the tissues in the organs. The visible and tangible anatomical lesions and the accompanying chemical changes in these lesions constitute the proper subject of Pathological Anatomy. Unfortunately we are not able, in all instances, to point out the chemico anatomical lesions when change of function exists. This does not detract from the correctness of the above statements, and this can by no means be used as an argument in favor of the so-called "functional diseases or disorders," but is solely owing to the deficiency of our physico-chemical means of investigation.

Pathological Anatomy comprises, then, two departments; Pathological Histology, and Pathological Chemistry.

From what you have already heard, you know that, in order to understand Pathological Anatomy, we must first become acquainted with the normal condition of the tissues, anatomy and physiology. You are all, as a matter of course, sufficiently acquainted with coarse anatomy, but I have some doubts, if you all have studied sufficiently minute anatomy. I say this boldly and without fear of giving offence, and for this reason. Some of you have graduated long before we knew anything positive about the minute structure of the organs. Histology proper dates only to the discovery of the animal

cell by Schwann, in 1838. Schwann's discovery gave a start to a new direction in the pursuit of this department, and only after a lapse of several years, Histology, based upon the cellular doctrine, made its appearance as quite a new branch of medical science. Though well established and most arduously cultivated in Europe, it did not easily find its way into our country; and even at the present day, there are but a few schools on this continent, in which this branch is duly appreciated and thoroughly taught. The younger members of the profession, who perhaps paid attention to the study of Histology in a more or less thorough manner, can only profit by having their minds refreshed. Therefore, in order that these lectures should be to your advantage, we will first cursorily review the subject of Histology, and then we will be able more readily to form a conception of Pathology.

The human organism is made up of a certain number of apparatuses, each apparatus of certain organs, each organ of certain tissues, and each tissue of elementary parts and intercellular substance.

We will now pursue a synthetical course, and commence with the consideration of the elementary parts, or the cells. What is a cell? A cell is the simplest organized body showing a two-fold character—a morphological and a physiological one.

In regard to the first, it is a spherical vesicle, bounded by a membrane, the cell-wall. Within this are the cell-contents, first, a fluid, and floating in this another vesicle, likewise bounded by a membrane and likewise containing fluid. This latter is called the nucleus. In this we generally find one, two, or even more transparent shining dots, called the nucleoli. But, gentlemen, I have presented to you now, only the ideal form of the cell, which is of rare occurrence in the adult; while the cells building up the fœtus, the embryonic cells, may be considered the representatives of this form, which we will call the "*typical*

form." This typical form becomes changed and modified in various manners by many circumstances, the principal one of which is mechanical pressure. Suppose, for instance, that cells lay crowded together, the inter-cellular substance being very scanty, and that pressure exists from above downwards, whilst there is no room for the cells to escape—you will see the vesicle becomes flattened and transformed into a disc. This discoid form is well illustrated in many laminated layers of epithelial cells, and still more so in the red blood corpuscles, which have in their centers an additional "cup-shaped depression."

Now suppose the pressure still more marked, the disc will, by becoming more flattened, finally be transformed into a membranous layer consisting of two luminae, the superior and inferior part of the cell-wall, which is well shown in the epidermis. These epidermoid cells, on the addition of certain fluids, will, in virtue of endosmosis, often again assume the original vesicular form.

Suppose, again, the pressure is exercised transversely, from side to side; then we have the high elongated or cylindrical cells, which, by being compressed more at the bottom than at the top, will assume a wedge-shaped form. The former lines the mucous membrane of the stomach, the latter the rest of the intestinal tract. If the lateral pressure in cylindrical cells is equally strong on the top and the bottom, we will have the spindle-shaped or fibre cell, which often becomes very much attenuated, as illustrated in the smooth muscular fibre. If the pressure is equal on all sides, in localities where there is but little inter-cellular substance, the cells will acquire a polyedric shape, usually hexagonal, as is seen in the pigmentary cells of the uvea, or also in fat cells, thus presenting a beautiful tessellated or mosaic appearance.

We have still other varieties of shape in cells. For the nervous cells in the gray substance of the brain, are vesciular, but they send off one, two or more processes, through

which they unite with nervous fibres. These are called the uni-polar, bi-polar, and multi-polar nervous cells. And again, other cells send off quite a number of those thread-like processes, which, by anostomosing with the same processes of neighboring cells, constitute a tubular network. This is most beautifully demonstrated in the osseous tissue, where we find the connective tissue cells, first discovered by Mr. Virchow, and named by him the "connective tissue corpuscles."

Again, other cells, after having acquired the wedge-shaped form, may, by tapering off in one direction, terminate in a long thin thread, as in cells, which I shall describe hereafter.

Though, as I have stated above, these varieties of cell-forms owe their origin to pressure, yet there are cells, as f. i., the red blood corpuscles and others, which, being in an abundant fluid inter-cellular substance, are not exposed to pressure. We, therefore, are bound to admit that there are still other circumstances, besides pressure, by which cell development, as to shape and form, is influenced.

A CASE OF SPONTANEOUS CURE, IN UTERO, OF DOUBLE HARE LIP, by A. HAMMER, M.D., Prof. of Surgery, Ophthalmology and Pathological Anatomy in the Humboldt Medical College, St. Louis, Missouri.

On the 7th of May, 1866, I was called to see a malformed female child, just two hours born. On examination I found upon the upper lip two, evidently cicatricial, lines, passing from the free margin upwards into the anterior nares, enclosing an almost rectangular surface. The free border of the lip was irregular, in as much as that portion of it belonging to the central, rectangular part abruptly receded a line, or, in other words, that the middle lobe was a line shorter than the lateral lobes. The lines appeared whitish, and more especially so by

contrast with the high red complexion of the new born child, they were slightly projecting above the skin and about one-third of a line broad. Two other lines on the inner, *i. e.* mucous surface of the lip, corresponding with the two on the cutaneous surface, further indicated a former division of the parts. Again, on the anterior aspect of the mucous membrane covering the supra-maxillary arch were two, also cicatricial lines corresponding in position, to the fissures which mark the lateral boundaries of the inter-maxillary bones at a very early day; these, indeed, were mere lines, thread-like, whitish, non-prominent. No evidence could be observed, however, on the inner surface of the arch, that a separation had existed. The curved lines of the alveolar surface was entirely normal, the central piece consisting of the two inter-maxillary bones not projecting —in the least abruptly—above the lateral parts. The anterior nares, in size, shape and form, as well as the nostrils and septum narium were perfectly normal, nothing of that flatness and breadth, so usually observed in hare lip, existed. The face, with the exception of the cicatricial lines, was regular and even beautifully shaped.

I presented the child, when two weeks old, to the Pathological Society of St. Louis, as a beautiful illustration of nature's repair, in utero, of mal-formation, the result of an arrest of development at a certain period. A very animated discussion there occurred, particularly as to the period when the arrest of development might have taken place, and for how long it continued until the process of union by cicatrization commenced. However, a definite conclusion could not be arrived at.

The case is, in my opinion, highly interesting, because it is, of all cases recorded of spontaneous cure of hare lip in utero, the most complete in every respect, not only as to the perfectness of the union, but also as to the extent of the lesion.

Prof. Bruns, of Tubingen, in his masterly work on Surgery, (rather a cyclopedia,) Vol. II. pp. 268 to 270, 1857, quoted

all the important cases known up to that time, which are as follows: One by Prof. Bruns, one by Ammon, 1844; three by Rennert, 1848; one by Maurel, 1857; one by Dieudonne, 1848; one by Horing, 1848; one by Lubarsch, 1850; one by Hollstein, 1847; one by Roux, 1837; one by Ulmer, 1853; two by Wagner, 1853; one by Comes, 1834; one by Klose and Paul, 1850; two by Schuller, 1855; in all 18 cases.

A careful examination of all these cases shows us, that either there existed but a single hair lip, or, that in double hare lip only one side was spontaneously healed.

FOREIGN NEWS.

Bacteria and Hooping-Cough.—At a meeting of the French Academy on Monday, the 5th inst., M. Guirette presented a note in which he described the results of a microscopic examination of the watery vapor exhaled by persons suffering from hooping-cough. He stated that in all cases where he had examined the vapor under the microscope, he found it to contain *bacteria* in immense numbers. The bodies he described as such were more or less fusiform, and measured about two-hundredth of a millimetre in length and about the three-hundredth of a millimetre in breadth. —*Med. Times and Gaz., Aug.* 10, 1867.

Death from the Entrance of Air into the Veins of the Uterus. —Prof. Olshausen relates a case in which, during parturition, the cervix not dilating rapidly enough, the uterine douche was applied. It was used three times, and about eight minutes after the last application, the patient complained of difficulty of breathing, suddenly rose straight up in bed, and then fell, and after a few convulsive efforts died. Emphysematous crepitation could be produced by pressure on the abdomen. At the post-mortem examination a considerable quantity of air bubbles was found in the coronary veins of the heart. The small quantity of blood contained in the right heart was very frothy. The womb crepitated on pressure; the surrounding vessels were filled with air bubbles, as also the ascending vena cava. The two placentas (it was a case of twins) were detatched, and one of them formed with the interior wall of the uterus an inflated pouch.—*Medical Record.*

Vaccinations and Revaccinations with Lymph from the Cow.—M. Husson, the Medical Director of Public Assistance, has given an account of the numerous trials he has made in the Paris Hospitals, where vaccinations and revaccinations have been frequently performed with the lymph taken directly from the cow. For fifteen months—from January, 1866, to April, 1867—heifers have been brought periodically to the various hospitals, and the number of vaccinations during this period amounted to 9316—viz., 1392 adult men, 2475 adult women, and 5449 children—not counting 803 foundlings also vaccinated during the same period. Of these 9316, 3589 (38.53 per cent.) were successful, 4576 (49.12 per cent.) failed,

and 1151 (12.35 per cent.) were doubtful. Analyzing these figures further, it was found that among the adult men there were 16.45 per cent. successful vaccinations, 71.77 per cent. unsuccessful, and 11.78 per cent. doubtful. Among the women there were 17.37 per cent. successful, 74.42 per cent. failures, and 8.21 per cent. doubtful. Among the children there were 53.77 per cent. successful, 31.84 per cent. unsuccessful, and 14.39 per cent. doubtful. At the Academy of Medicine the successful cases of vaccination in children vaccinated from the cow amounted to 61 82 per cent., and in those vaccinated from arm to arm to 60.53 per cent. Various public establishments besides the hospitals have had vaccination from the cow performed upon their inmates, and it has become very general in private families. M. Lanoix himself is stated to have practised 9112 vaccinations, 4678 of the number in public establishments; and he has also charged 18,000 tubes with lymph. For the whole of his supplies he has required 400 heifers.—*Med. Times and Gaz., Aug.* 10, 1867.

A New Fungus found in Cholera Evacuations.—Dr. Otto Wilh. Thome, of Cologne, states that he has succeeded by microscopic examination, and by cultivation of cholera dejections, in discovering a parasitic plant, which was very abundant in all the cases he examined, and which exerted a peculiar disorganizing influence on the epithelial cells. He thinks it not too bold to suppose that *this is the cholera poison;* although he admits that this supposition is not yet confirmed by experiment—as by introducing the plant into the food of animals and observing the effects. He conceives it impossible to do this satisfactorily, as we possess no means of separating the minute organisms from the fluid in which they are present, and we could not be certain that the poison was not in the fluid rather than the organism. The plant belongs to a genus and species hitherto undescribed.—*Edin. Med. Journal, May,* 1867*; from Virchow's Archiv, Feb.*.

Subcutaneous Injection.—A special meeting of the Royal Medical and Chirurgical Society was held on Tuesday last, the 18th inst., to receive the report of the Committee appointed by the Society to investigate the subject of the subcutaneous introduction of drugs into the system. The objects set before the Committee were, the investigation of both the physiological and the therapeutical effects of medicines thus acting upon the system, both as regards intensity and duration, and also in relation to rapidity of absorption. The following alkaloids were experimented with: Aconitine, atropine, morphine,

strychnine, quinine; and the Committee also investigated the actions of the following important drugs: Calabar bean, conia, hydrocyanic acid, iodide of potassium, podophyllin, colocynth, aloes, and Battley's solution of opium. The report, which was read in abstract, contrasted the effects of each medicine when taken by the mouth, injected into the rectum and into the subcutaneous cellular tissue, and when printed it will form a valuable mine of therapeutical data. We congratulate the committee on the successful termination of their arduous labors.—*Lancet, June* 22, 1867.

Syphilis in a Bottle Factory.—M. Dechaux, in a recent number of the *Gazette Medicale de Lyon*, gives an interesting narration of the propagation of syphilis by the mouth at a bottle factory to which he is attached, at Montlucon. It seems that the glass-blowers at such establishments are of a nomad character, wandering from factory to factory in search of work, One of these men, not having the best of reputations, had in vain sought for employment, having been rejected at various workshops. At last, the workmen at Montlucon, touched by some sonorous phrases, such as "he demanded the sacred right of labor in the name of that necessity which had so long weighed him down," agreed to allow him to join one of the working parties into which the *employes* are divided, his business being to commence blowing the bottles, and handing them to others to continue the same operation, so that they passed hot and moist from his mouth to the mouths of his neighbors in rapid succession. At the end of the first week four workmen had bad mouths; and next week four others, and a little later two more. As soon as any suspicion was excited, the man was submitted to examination by M. Dechaux, avowing that he had had syphilis a long time since, but had been effectually cured of it in the hospital. On examining his mouth nothing abnormal could be perceived, save a small crack on the lower lip, unaccompanied by induration, and a common enough appearance among glass-blowers. The workmen on their part instituted an examination, and they as well as the Doctor pronounced him free from any disease prohibitive of his working with them. Still the men above alluded to exhibited chancrous sores at the commissures of the lips and other parts of the mouth and throat, and enlarged submaxillary glands. A more searching examination of the man's prior history now discovered that during the last four years he had infected workmen in the various bottle factories he had entered, and had been driven from tnem; and that, in fact, the disease was seated in the nose, the bones of which were the seat

of caries, giving rise to fetid suppuration. And yet this man carrying this poison about with him, was allowed to enter factory after factory, for, says the narrator with abundant *naivete*, "had the nature of his complaint been inscribed on his *livret*, it would have infallibly prevented his getting employment." However, in consequence of such delicacy, the workmen who had accepted him as a partner became the subjects of chancres of the lips, these, in five of their number, reaching the size of one or two franc pieces, and being attended with inflammation, swelling, and induration. They continued in their acute stage for about twenty days, and were not entirely removed until from thirty to sixty days—suspicious-looking ulcerations reappearing in some for a still longer period. In all there was induration of the submaxillary glands, which lasted for from forty to ninety days. In five of the cases the throat was affected, in six there was cutaneous syphilis, and in four pustules or vegetations about the anus. As may be supposed, the health of some of these workmen (eleven in number) was very seriously damaged, and in none of them could work be resumed from forty days to three months. In two instances in which it was attempted too soon, the disease was communicated to others.—*Med. Times and Gaz.*, *July* 20th, 1867.

Spontaneous Division of a Vesical Calculus.—M. Gueniot, who has been temporarily intrusted with the wards of the late M. Civiale at Necker, has presented to the Society of Surgery an interesting pathological specimen taken from the body of an old man of eighty-three. For two years the patient (who is now dead) used to pass in his urine fragments of stone, which have been preserved. This spontaneous division of a vesical calculus is of rare occurrence, and M. Gueniot said that Civiale during the course of his long career had only noticed two other instances of this fact. The influence of diet could not have brought on the occurrence in this particular case. Three calculi were found in the bladder; two of them were unimpaired, and the third was on the point of division. The bladder was partitioned into two distinct sacs, one on the left and the other on the right. The calculi were found in the left purse, and this part of the bladder was in immediate contact with the left iliac vein, which was inflamed. The rubbing of the calculi against the vessel through the walls of the bladder evidently brought on phlebitis, and gave rise to phlegmasia alba dolens, which proved fatal.—*Lancet*, *Aug.* 3, 1897.

Successful Inoculation of Tuberculous Matter.—M. Colin has just presented to the Academy of Medicine of Paris, an elaborate report on M. Villemin's labors touching the transmission of tuberculosis by inoculation. M. Colin repeated several of the experiments upon animals, and was completely successful—so much so as to induce him to ask the Academy to compliment M. Villemin on his investigations, and to request him to pursue them with the same care and ingenuity he has hitherto displayed. This high approval opens a new field to pathological research; it will aid us in ascertaining whether phthisis is contagious (as is believed in Italy) or not; and perhaps it may lead, what is earnestly to be wished, to effectual therapeutical application.—*Lancet, July* 27, 1867.

OBITUARY RECORD.

Velpeau.—Sitting in the court-yard of the School of Medicine of Paris ten years ago, we felt as we gazed upon the great men then assembled to do honor to the immortal Bichat, that the loftiest niches in the Temple of Fame were but phantasms.

Futurity rolled up its curtain, and we saw upon the stage of life, none of the Faculty who had shed such lustre upon France and upon the world. Prophetic as were our forebodings, little did we dream that so few short years would intervene. There we saw Iobert de Lamballe, Malgaigne, Trousseau, Velpeau, Bonilland, Rayer, Piorry. They looked the magnificence of our art, as they sat, grandly empurpled in their professorial robes.

The black winged messengers have whispered their commands, and nearly all of them have obeyed the summons. Marching down the aisles of memory, the revered forms of the glorious dead beckon us in silence! One more is added to the army of the spirit land, and as the lightning messenger leaps from continent to continent, rending its way through vastness and space, the muffled monotone of the funeral bell floats across the Atlantic deep, bearing the dirge that Velpeau is no more.

The fearful stillness of death reigns in Paris. The busy hum of commerce is hushed, the harsh levity of mirth ceases, the skilled hand of diplomacy pauses, for the hymn of Medicine is being intoned by all France.

From the time honored plinths of La Charite, to the festooned columns of Pere-la-Chaise, the transition is but slight, and the silvered wisdom of the *Hospice* has become honored clay in the City of the Dead.

ALFRED ARMAND LOUIS MARIE VELPEAU was born at BRECHE, DEPARTMENT D' INDRE ET LOIRE, May 18th, 1795, and died in PARIS, August 27th, 1867. He lived his three score and ten. Shall we say more? Can we add aught to the brilliancy of his reputation? We trow not. All medical men knew of him as the grandest and the greatest of the French Surgeons, whose knowledge was supreme. Born in the year when the first Napoleon was elected to command the armies of France, he died when the third Napoleon had fulfilled the destiny of his race by aggrandizing the Empire into an Epoch of Science and Art, cemented by Peace. Velpeau shed his genius upon the age, and that age was worthy of him, the Napoleon of Surgery.

"Nothing in his life
Became him like the leaving it. He died
As one that had been studied in his death."
And in that death we lost a leader.

EDITORIAL.

Not having received full reports of the transactions of the ST. LOUIS MEDICAL SOCIETY and the PATHOLOGICAL SOCIETY, we are debarred the pleasure of publishing their proceedings. We hope to present them somewhat *in extenso* in our next, as the Secretaries of each have promised us full reports.

The reports of the Young Men's Medical Society have been misplaced. They will appear in our next.

MEDICAL EDUCATION.

We have received the circular of the committee appointed by the Convention of Delegates from Medical Colleges, called for the purpose of revising the system of Medical College Instruction in this country, and which convened in Cincinnati, May 3d, 1867. This circular is addressed to "Medical Colleges," and puts some very pertinent questions to them. How they will respond remains to be seen, but we venture to believe that the object to be attained will not be accomplished.

Why we utter such a proposition, is owing to the fact, that the profession is not yet sufficiently impressed with the idea that knowledge, not pretence, is necessary. Here in St. Louis, the Humboldt Medical College, the pioneer in reform, the first and only School in the length and breadth of the land which essays this mighty gage, receives the *congratulations* of the medical community, who send their students where they can easiest graduate, and not where they are indoctrinated from the simple to the complex, as is requested by the committee, composed of Drs. Davis, Gross, Blackman and Donaldson. We tell these gentlemen not to wait for a simultaneous action of the entire number of medical schools in the country, but to urge their own faculties to buckle on the harness and go forth to the fight. If they do it, representing four great colleges, then we will be just that number more of valiant soldiers doing battle in a good cause.

What if the number of students falls off, gentlemen Professors, for a few years? Are you not willing and anxious to promote the welfare of your profession? You certainly do not desire to make any money out of your Professorships, for if you did, then you would not labor so hard for the general welfare! Make the sacrifice now, and then the other colleges will not hesitate to follow your example, but until you act more, and talk less, we are disposed to believe that the Teachers Convention will result in a *fiasco*.

Here in St. Louis, notwithstanding every one admits the principle of reform in Medical Education, two powerful schools do all they can not to promote it. One school absolutely repudiated the Convention in Cincinnati, and the other failed to be represented. If we of St. Louis are divided in the proportion of two to one against medical reform, as regards the courses of instruction of medical colleges, how are we to judge of the whole country? We have our opinions on these matters, and we shall see, that to accomplish great results, corresponding sacrifices must be made.

NOTICE TO SUBSCRIBERS AND CORRESPONDENTS.

We have been very particular in the distribution of our first number, and have been thus far gratified with the result. Many gentlemen, however, have failed to notify us of their intention to remit their subscription. The success of any enterprise depends upon the promptness of both parties entering into the agreement. We therefore hope, that all will do us the favor to state if they desire to foster our efforts; and the proper way to exhibit such, is to forward the money Our printers must be paid for their labor; and type, paper, and presswork are cash transactions. We will spare no labor or expense to increase the facilities of the ARCHIVES, but we cannot send them for nothing. The subscription price is put down to the lowest figure, and our friends and patrons may look for promptitude on our part; we desire such on theirs. We address them thus, in a body, because the labor of writing to each one individually, would be too great for us to perform.

Correspondents, who desire a reply, will please enclose a three-cent postage stamp. Three cents is not much, but in the aggregate amounts to many dollars, and is a very great tax upon the Editors.

BIBLIOGRAPHICAL NOTICES.

We have received, through Lee & Shepard, of Boston, from the author, a most unique and valuable little book, entitled, "*Is it I?*"—a book for every man; a companion to "*Why Not?*"—a book for every woman; by PROF. HORATIO R. STORER, of Boston. It is an effort to stem the tide of fashion in the way of the world, which is very prevalent in the Eastern States, and not unknown in the West; and, which, in plain language, makes beasts of women and brutes of men.

"It may, perhaps, be alleged that the topics of which this book must treat are such as cannot possibly be discussed without offending good taste, or transcending propriety." So says the author, but if one follows the course of argumentation, such a conclusion cannot be accepted. The eight chapters following the prefatory remarks, are each of them sound moral lessons, and would serve as texts for many of our pulpit orators, as well as a rule of advice for physicians exercising the confidential relations they must necessarily bear towards their patients' families. These chapters are, *I. It is not good to be alone. II. Marriage as a Sanitary Measure. III. How Early in Life is Marriage to be Advised? IV. The Rights of the Husband. V. Are these Rights Absolute or Reciprocal. VI. Should mere Instinct, or Reason be the Rule. VII. Arguments and Counter-Arguments as to Divorce. VIII. A Plea for Women.*

It will be seen, then, that Dr. Storer has taken into consideration, the highest principles for the guidance of Society, and he is scathing in his denunciations, charitable in his conclusions, philosophic throughout. Moreover, the publication of this little work is indicative of Dr. Storer's generosity, because it was one of the rejected essays, competing for the prize offered by the American Medical Association, for its session at Cincinnati, last May.

Dr. Storer says, "Its manuscript has already passed through one trying ordeal, with a certain measure of success. Submitted to the touchstone of the Prize Committee of the Association for the present year, it was distanced by essays of Drs. Black of Ohio, upon the Cause of Intermittent and Remittent Fevers, and Pallen of Missouri, upon the Treatment of certain Abnormities of the Uterus; treating as these did, of subjects of more direct and especial interest to the medical profession; but it elicited the following letter from the distinguished Professor in the University of Maryland, who represented the committee as its chairman, and was, of course, unaware of the identity of

the author, which had been carefully disguised, until I wrote to reclaim the manuscript:

BALTIMORE, 21st May, 1867.

DEAR DOCTOR—

I have read your essay with very great interest, and hope that you will publish it. It certainly will do good. The subject, although one of great delicacy, is handled with marked ability. The whole profession ought to feel grateful to you for your efforts to check the fearful amount of crime in relation to abortions. Your essay will, I have no doubt, meet with the general approval of the Association.

Very Respectfully,

F. DONALDSON.

Dr. H. R. Storer, Boston.

Prof. Donaldson's letter fully explains the whole book. We advise all who feel an interest in the moral teachings of our profession, to read it.

Woman's Rights; by REV. JOHN TODD, D.D., published by Lee & Shepard, Boston, 1867, is one of the "Tracts for the People." It is an appeal to the true instincts of the sex, and as a cultivator of woman's inherent modesty, is an excellent treatise. We have to thank Dr. Storer also for this little work.

PROF. NOYES, of the Bellevue, has laid us under obligations for the "*Transactions of the American Ophthalmological Society —Third Annual Meeting,*" Boston, June, 1866.

We have also received a pamphlet list of Lindsay & Blakeston's publications.

EXCHANGES RECEIVED.

Boston Medical and Surgical Journal.
Buffalo Medical and Surgical Journal.
Chicago Medical Examiner.
Chemical News, N. Y.
Leavenworth Medical Herald.
Medical and Surgical Reporter, Phila.

Nashville Journal of Medicine and Surgery.
Southern Journal of Medical Sciences, N. O.
St. Louis Medical and Surgical Journal.
St. Louis Medical Reporter.
Western Journal of Medicine.
American Journal of Dental Science.
Dental Cosmos.

In addition to the above we have sent for exchange to the—

Atlanta Medical & Surgical Jour.
Braithewaite's Retrospect.
Chicago Medical Journal.
Cincinnati Lancet & Observer.
Druggists Circular & Chemical Gaz.
Galveston Medical Journal.
Journal of Applied Chemistry.
London Lancet, (reprint N. Y.)
New York Medical Record.
New Orleans Medical Journal.
New York Medical Journal.
Pacific Medical & Surgical Jour.
Southern Medical & Surgical Jour
The American Jour. of Med. Science.
The American Jour. of Pharmacy.
The Detroit Review.
The Journal of Materia Medica, Lebanon, N. Y.
The Quarterly Journal of Psychological Medicine.
The Richmond Medical Journal.
The Ophthalmic Review, London.
The Medical Mirror, London.
The Canada Medical Journal.
The Dublin Quarterly Journal of Medical Sciences.

And all of the French and German Medical Periodicals.

TO MEDICAL COLLEGES:

At the Convention of Delegates from Medical Colleges, called for the purpose of revising the system of Medical College instruction in this country, and which convened in Cincinnati, May 3d, 1867, the following resolution was unanimously adopted:

"*Resolved*, That a committee of five be appointed by the President, whose duty it shall be to present the several propositions adopted by this Convention, to the Trustees and Faculties of all the Medical Colleges in this country, and solicit their definite action thereon, ***with a view to the early and simultaneous practical adoption*** of the same throughout the whole country. And that the same committee be authorized to call another convention whenever deemed advisable.

The undersigned Committee, appointed for the purpose of carrying into effect the instructions contained in the foregoing resolution, respectfully

invite the attention of the Trustees and Faculty of every duly organized Medical College in the United States to the five following propositions, which, after mature deliberation, were adopted by the said Convention with entire unanimity:

"*Resolved*, 1*st*. That every student applying for matriculation in a Medical College shall be required to show, either by satisfactory certificate, or by a direct examination by a committee of the Faculty, that he possesses a knowledge of the common English branches of education, including the first series of mathematics, the elements of the natural sciences, and a sufficient knowledge of Latin and Greek to understand the technical terms of the profession; and that the certificate presented, or the result of the examination thus required, be regularly filed as a part of the records of each Medical College.

2*d*. That every medical student shall be required to study four full years, including three regular annual courses of medical college instruction, before being admitted to an examination for the degree of Doctor of Medicine.

3*d*. That the minimum duration of a regular annual lecture term, or course of medical college instruction, shall be six calendar months.

4*th*. That every Medical College shall embrace in its Curriculum the following branches, to be taught by not less than nine Professors, viz:

Descriptive Anatomy, including dissections; Physiology and Histology; Inorganic Chemistry; Materia Medica; Organic Chemistry and Toxicology; General Pathology, Therapeutics, Pathological Anatomy, and Public Hygiene; Surgical Anatomy and operations of Surgery; Medical Jurisprudence and Medical Ethics; Practice of Medicine; Practice of Surgery; Obstetrics, and Diseases of Women and Children; Clinical Medicine, and Clinical Surgery; and that these several branches shall be divided into three groups or series, corresponding with the three courses of Medical College instruction required.

The first, or *Freshman series*, shall embrace Descriptive Anatomy and Practical Dissections; Physiology and Histology; Inorganic Chemistry, and Materia Medica. To these the attention of the student shall be mainly restricted during the first course of medical college instruction, and in these he shall submit to a thorough examination by the proper members of the Faculty, at its close, and receive a certificate indicating the degree of his progress.

The second, or *Junior series*, shall embrace Organic Chemistry and Toxicology; General Pathology, Pathological Anatomy, Therapeutics, and Public Hygiene; Surgical Anatomy and operations of Surgery; Medical Jurisprudence and Medical Ethics. To these the attention of the medical student shall be directed during his second course of medical college instruction, and in them he shall be examined at the close of his second course, in the same manner as after the first.

The third, or *Senior series*, shall embrace Practical Medicine; Practical Surgery; Obstetrics and Diseases peculiar to Women and Children; with Clinical Medicine and Clinical Surgery in a hospital. These shall occupy the attention of the student during his third course of college instruction, and at its close he shall be eligible to a general examination for the degree of Doctor of Medicine.

The instruction in the three series is to be given simultaneously, and to continue throughout the whole of each annual college term; each student attending the lectures on such branches as belong to his period of progress in study, in the same manner as the sophomore, junior and senior classes, each pursue their studies simultaneously throughout the collegiate year in all our Literary Colleges.

5th. That every Medical College should immediately adopt some effectual method of ascertaining the actual attendance of students, upon its lectures and other exercises, and at the close of each session, or of the attendance of the student, a certificate specifying the time and the courses of instruction actually attended, should be given, and such certificate *only* should be received by other colleges as evidence of such attendance."

It will be seen that these propositions are designed to introduce into the system of medical college instruction in this country, *four changes* of great practical importance. namely: 1st. A positive standard of preliminary education. 2d. A longer time in which to acquire a knowledge of the various branches of Medical Science and practice. 3d. A systematic and successive order of studies for the student. 4th. A certain amount of direct clinical instruction in a public hospital as a part of the senior course. The desirableness of these changes is too apparent to require either argument or illustration. The plan for accomplishing them, adopted by the Convention, as expressed in the foregoing propositions, is simple and easy of execution, provided the several colleges will act in concert.

It requires each college to obtain and place on record sufficient evidence that every student admitted to matriculation possesses a certain amount of preliminary education. It requires *attendance* and *pay* for three annual courses of college instruction, as a condition for graduation; and arranges the whole curriculum of the college into three corresponding series of branches, so that each student can limit his attention to one series each year, thereby laying a foundation and building on it a superstructure in their natural order.

It contemplates such an increase in the number of members of each college Faculty, that four lectures per day can be given to each of the three *classes* in attendance, throughout the whole college term of six months. This would afford a very full course of instruction in each of the three *series* of *branches*, and yet give to the members of each class time fully to digest the instruction received. This would make it necessary during a part of each day that lectures should be given at the same hours to different classes. But as all medical colleges contain two and some of them three lecture rooms, this would be attended by no inconvenience to the Faculty or students. The only valid objection which has been suggested by those connected with the Medical College, is, that the increase in the number of each College Faculty required by the proposed plan, would necessitate a corresponding greater division of the income of each college, and thereby seriously reduce the amount received by any one member. If it is remembered, however, that while the plan requires a moderate addition to the number of members in the Faculties of most colleges, it also requires each student to attend and *pay full fees* for three courses of

instruction instead of two, it will be seen that the revenues of each college derived from lecture fees, will be increased in full proportion to the increase of the Faculty. As most of the colleges have allowed each member of the Faculty to sell his tickets to the class, and retain the proceeds as his individual compensation, it has been thought, that the proposed division of the students, attending any given college, into three distinct classes, and assigning to each a distinct series of branches, would limit the sale of the tickets of any one professor to the special class receiving instruction in his department; and consequently would restrict his income in proportion to the restricted number of tickets sold.

This is simply a misapprehension. The Convention took no action regarding the rate of lecture fees in any of the colleges; but the plan proposed, was founded on the expectation that each student would pay the same aggregate fees annually, as under the old plan. For instance, a student attending his first course and taking out the four tickets of the Freshmen series, would pay the same amount for the four that he now pays for the seven or eight that cover the curriculum in most of the colleges at this time. Hence, although each member of the Faculty would sell a smaller number of tickets, the income from them would be nearly the same. Or, each college could have all lecture fees, from the several divisions of the class, paid to a common treasurer, and each member of the Faculty allowed to draw on such treasurer for his proportion of the same.

The 4th section or proposition adopted by the Convention, was not designed to fix the titles of professorships in the colleges, but simply to designate what was deemed necessary to constitute a proper Medical College Curriculum, and to determine what part of that Curriculum should be included in each of the *three series* of studies. Uniformity among the colleges in regard to this division into series, is very desirable in order to enable students, if they choose, to attend one series of studies in one college, and another series in another without confusion.

To obviate embarrassment in making the change from the present system of college instruction to the one proposed, we would suggest that all students who should have so nearly completed their period of study at the time fixed for making the change, that an attendance on a single additional course of lectures would render them eligible to graduation, should be allowed to complete their course by attending the *senior* department under the new arrangement; while all who are in the first half of their period of study, should be subject to the new arrangement in full.

That the interests of medical science, the honor of the profession, and the welfare of the people, urgently require important improvements in our system of medical education and medical college instruction, is apparent to

all. The public sentiment of the profession, as expressed through the National, State, and local Societies, and through the leading medical periodicals, cordially sanction the plan here proposed. We therefore respectfully ask you to give it a full consideration, and return to the Chairman of the undersigned committee, answers to the following questions:

1st. Do your Faculty, together with the governing authority of your College approve of the several propositions as a whole?

2d. If you do not approve of the plan of revision as a whole, what changes would you suggest?

3d. If you approve of the plan as a whole, or of all its essential features, will your College be ready to adopt it practically, and issue your Annual Announcement for the college term of 1868-9, in accordance therewith; provided all the principal Medical Colleges in this country (or at least those in the cities of Boston, New York, Philadelphia, Baltimore, Richmond, Charleston, New Orleans, Louisville, Cincinnati, St. Louis, Chicago, Buffalo and Albany,) will agree to do the same at the same time?

The great desideratum is to secure both harmony and concert of action on the part of the Medical Colleges, in the adoption of such measures as will at once place the system of medical education in this country on such a basis as the extent of the science, and the responsibilities of its practical application in the prevention and treatment of diseases, require.

N. S. DAVIS,
S. D. GROSS,
GEO. C. BLACKMAN,
F. DONALDSON,
Committee.

CHICAGO, Aug. 1st, 1867.

MISCELLANEOUS.

ON SELF ABUSE IN WOMEN, ITS CAUSATION AND RATIONAL TREATMENT. By HORATIO R. STORER, M.D., Prof. of Obstetrics and the Diseases of Women, in Berkshire Medical College, and Vice-President of the American Medical Association.

In addressing, as I shall now do for the first time, my professional brethren of the West through the medium of one of their own journals, I am actuated by several considerations. *Imprimis*, that I have frequently received very civil requests from the conductors of distant periodicals to occasionally make such use of their columns; the last of these courtesies having been from my friend, Prof. Parvin, of the late Cincin-

nati Journal of Medicine. Second, That I may distinctly ascertain from this gentleman, by thus taking him at his word, the meaning of a reference to myself, made in the course of his report of the proceedings of the late session of the Cincinnati Medical Association, (*Cincinnati Journal of Medicine*. June, 1867. p. 332), the remarks referred to reading as follows: "We had the pleasure of conducting one of the Superintendents of Insane Asylums to the room devoted to Psychology. But he found himself alone in his glory—not one single alienist to meet him; not even Dr. Storer came to teach, or be taught; whereat our wonder was doubtless greater than our friend's disappointment." I desire to know the meaning of the above expression. Had Prof. Parvin been aware that the Section of Psychology, of which the writer had the honor to be Secretary, formally met upon the previous afternoon, transacted the business for which it had been convened, and then regularly adjourned without day, both wonder and astonishment would probably have been wanting. Third, That I have received many letters, professional and unprofessional, concerning the subject of which I now propose to treat, from the West, as from other sections of the country; from one of these letters I may quote. Fourth, Its intrinsic importance. Fifth, The increased interest taken in it by physicians, since the late combined professional suicide and professional murder of Mr. Baker Brown, of London. And, finally, my own belief that even at the present moment, the subject is very generally misinterpreted, is as frequently treated upon erroneous principles of practice, and is too entirely overlooked.

Now I venture to say at the outset, that self abuse in women is not of rare occurrence; that it prevails alike in those who are married and who are unmarried; in the young and in the old; that it is not necessarily a vice, nor primary, but that it may be the result of physical causes, and therefore less amenable to moral than to physical treatment; that it is not always a sign of partial insanity, its effect or its cause; that while far less frequently than in the male, productive of extreme nervous exhaustion, it is even more frequently than in him productive of partial or extreme nervous irritation, explaining many of the cases of so-called hysteria; and that in many instances the habit initiates from no normal or abnormal longing of the woman's own heart, from no direct or indirect physical sensation upon her part, from no endeavor to simulate previous sexual intercourse had with husband or lover, but from manual caresses conferred by some half-timid man, or from the measures injudiciously or too frequently employed, however honestly, by a medical attendant, or from certain legitimate and very common employments of life, such, for in-

stance as the use of the sewing machine. I have space but for a few words as to the causation of self abuse in women. The greater pertion of my remarks I shall endeavor to devote to its rational treatment.

It may be permitted me here to say, that the views that I shall present are the result, not of thought alone, but of many hundreds of confessions, and many years observation of sick women. I acknowledge freely that the statements of women concerning sexual matters are often to be received with extreme caution, but I would call attention on the other hand to the fact that here, as elsewhere, a single positive case outweighs very many negative ones. With reference to the frequency of the habit to which I am alluding, it is as with the somewhat co-relative question of the frequency of criminal abortion. Both of them are matters of very delicate character; concerning both of them, physician and patient would gladly preserve silence, were it not that by this means the evils referred to with all their train of deplorable results, would be sure to proceed unchecked. The frequency of unjustifiable abortion, is now recognized by every medical man, and reform is rapidly taking place. Ten years ago, however, the situation was very different. Upon my directing the attention of the profession to the matter in a paper read before the Suffolk District Medical Society at Boston, I think in 1856, I presented tables based upon confessions made to me within a given time by patients, said patients being married, well to do in life, and professing, for the most part, to hold by the tenets of religion. In answer to my paper, the evidence of which was irresistible, one of our oldest and most influential physicians, at that time Professor in Harvard University, felt called upon to express his astonishment and doubt, inasmuch as during some forty years or more of practice, he had never known a single case of criminal abortion. The method of adjustment of our divergent experience I commend to the attention of all who may suppose that self abuse is comparatively unknown among women. My statements to the Society, as I have said, were based upon the confessions of patients. I asked the gentlemen if, during his long experience, he had ever questioned a woman if her abortion had been an intentional one. "I consider, sir, that I should have insulted her by so doing," was the reply. To obtain positive evidence in these matters, the physician must seek it; obtained, as I have said, the experience of the seeker will outweigh that of all who cross over and pass on the other side, without injury.

But it will be said, as many have remarked to me, that women will not confess these habits, even where there is no doubt that they exist. This however, is, in fact, an error. No

woman, of course, who values the respect of her physician, would confess of her own accord, to what is too generally esteemed an unpardonable vice. If, however, that physician, viewing the subject in the light in which I shall endeavor to place it, approaches it intelligently, and shows that he considers as undoubtedly it often is, a simple matter of physical disease, to be judged of, conversed of, and treated as any other, he will find that every woman of delicacy and refinement will truthfully reply to the questions he may think it necessary to put. Indelicacy in the physician, lies rather in ignoring these pains and aches, and sufferings, these problems, that lie beneath all social life and all domestic happiness, than in sensibly studying their phenomena. and throwing upon them the light of science. To this fact I would respectfully call the attention of the editorial staff of the New Orleans Medical and Surgical Journal; an article in the current number of which, (July), purporting to be a review of a late publication, I commend to all lovers of truly scientific criticism.

I have said that self abuse, in many cases, is not a vice, but the result of disease. It is often but the symptom of disease. This is true, sometimes, of the same habit in our own sex, just as it is true of that sense of congestion, whether physical in its appreciation or mental, which impels men who have been previously accustomed to it, towards sexual intercourse. The irritation of ascarides in the rectum, of hæmorrhoids, of anal fissures, of constipation, of varicocele, of enlarged prostate, and of vesical calculus, are each of them the cause of uneasiness, of priapism, of sexual desire. To relieve the sensations, reflex or direct, that are thus occasioned, suggestions en er the mind that are frequently uncontollable. Of the causes mentioned, there are several that are equally present in the female, constipation and hæmorrhoids, and perhaps anal fissures * are even more frequently so. To them must be added others; a vast variety of leucorrhœal discharges, and the menstrual flux, each of them at times sufficiently irritating to produce blenorrhœa in the male, which, by no test yet known can be diagnosticated from the true gonorrheal virus, together with so many forms of vulval, vaginal, vesical, uterine and ovarian disease, all of them liable to be atteded with extreme reflex and neuralgic irritation, that we have good reason to be thankful that we are not ourselves of the female sex. I have no doubt whatever, that the nymphal or clitoridal sensation, is at times, as purely reflex as the characteristic pain at the extremity of the penis, that may attend calculus in the male, for I have studied the symptoms in very many women. If this be the case, the patient is a fitter subject by far for medical treat-

* See Observations and Cases in Surgory, by Dr. Mason Warren, Boston, 1867.

ment than for the madhouse or nunnery, and yet I have known both of these latter methods resorted to instead of the first.

I have said that self-abuse in the female, even though in an extreme, is not necessarily a sign of insanity. I have repeatedly known women to tear their flesh with their nails, in the vain attempt to eradicate a sensation whose origin could not thus be reached. It will be allowed by those familiar with the subject, that we have several classes of masturbators—those who endeavor to relieve themselves from pain, those who endeavor to prevent pain, and those who endeavor to awake or prolong a sensation of pleasure. All these conditions may, and frequently do, run into each other. The procedure, commenced as it were in self-defence, may easily merge into voluptuous self-abandonment, and sometimes pain and pleasure are so nearly identical, that they cannot be contradistinguished. Upon the other hand, I have observed instances where the habit has been constant, and yet apparently no libidinous desire has ever been present. Two of these cases I will instance; they are types of classes which comprise a vast range between them. One of these patients is a young child, now seven years old; of very respectable stock, with no hereditary taint of mental disturbance, or excessive carnal desire. I was first consulted about this case some six weeks or two months ago, the mother being under my charge for pelvic cullulitis. The little child, when *less than six months* old, was observed to be constantly directing her hands towards the pudenda; mittens, and straps to the arms, were resorted to without avail. The habit has steadily increased, and until the time I was consulted, the unfortunate child, old enough to appreciate her mother's persuasive entreaties, and though evidently making a strong effort to control herself, so constantly yielded to the uncontrollable impulse, even in the presence of others, that it has been necessary to keep her alike from school and from society. Now here the habit originated long before the child could have learned it from others. It was owing to the presence of ascarides in the rectum, and perhaps in the vagina, also, for they occasionally cross the perineal barrier. The other instance to which I have referred is that of a young lady, some thirty years of age, of highly cultivated mind, and great personal beauty. In consequence of uterine disease, of which it was merely a symptom, the puritus assumed such intensity that it was thought necessary to remove her to an insane asylum, and here, for I have it from the lips of the Superintendent who had charge of her, the local irritation was so excessive that the poor girl, confined by the camisole, would yet rub herself upon her heel, and this openly and

before the medical attendants. The symptom in this case I have long since removed by appropriate treatment, but the point to which I would refer is an important one. There was here, despite all the irritability that I have described, a sexual apathy. While still unrelieved of her suffering, the patient had opportunity of coitus with a person for whom she had a strong personal attachment, and under circumstances which rendered it almost impossible for the fact to have become known. She was told that pregnancy might be prevented, and probably believed it, as I have the same statement from herself and the other party, who was unconnected with the asylum at which she had been resident, and yet she felt not the slightest sexual inclination. Moral principle was unable to prevent the self-abuse, and it is improbable that moral principle prevented the yielding to a more natural instinct.

It will be said, undoubtedly, that what I have now described, is simply what obtains in the male under similar circumstances. I think, however, that this is not the case. The male, under almost all circumstances, can, if he desires, find women who will allow him to cohabit with them. Self-abuse with him, is, in the vast majority of instances, not so much owing to lack of opportunity for more normal self-gratification, as to an aberration of instinct—often, undoubtedly, as in the female, of reflex causation. With women, on the contrary, there being an excess of them in the older States, there often exists not merely an entire lack of the opportuuity referred to, but in a far greater proportion of them than is generally supposed, complete sexual apathy, an utter lack of desire, under any and all circumstances. With them the excess of instinct is toward their children after birth, therein differing strongly from our own sex, who are rather planters than reapers.

I make this statement deliberately, and after free conversation with a great many women upon this subject. I am fully aware of its delicacy, but I am also convinced that in this direction lies the only solution of many maladies that we are called upon to treat. Women are constantly allowed by their medical attendants, to suffer for years for want of simple questions being put to them about matters concerning which the patient will readily answer, but which they naturally feel it might be indelicate for them to broach themselves.

I do not, with my friend, Dr. Fonerde, of Baltimore, the intelligent Superintendent of one of the insane asylums of that city, think that almost every case of mental disturbance originates from, or is exacerbated by self-abuse. We all know that in women this is not attended by the exhausting discharge that attends its indulgence in men; but I am sure that

every physician that investigates the subject as I have done, will find that its effects, just as its frequency, have been much underrated. It accompanies, both as a symptom and as a cause, many of the apparently inexplicable and intractable cases of long confinement to the couch; it explains many a fitful temper, many a restless disposition, many a suicide. One instance at least, of the latter I have seen in practice: not merely have oral confessions, as to the other results, been made to me by very many patients, but I have received letters upon the subject from other invalids whom I shall probably never see.

Of late, the clergy, in the matter of arresting the spread of criminal abortion, and the correlative evil of preventing pregnancy in the married, have taken a manly stand in aid of our profession The writings of the Rev. Drs. Todd, ot Massachusetts, and Eddy, of Chicago, have been pioneer to a mass of literature upon the subject. The matter which I am now discussing is a much more difficult one to entrust to saintly advisers. That even here, however, they are ready for the good work, is proved from the following extracts from a letter written to me by a prominent clergyman in Illinois:

"Grateful for your plain, manly statements concerning abortion, I cannot refrain from asking a question upon a kindred subject. There is a vast evil which is ruining both young women and young men. Of course you are familiar with it; I refer to self abuse, and particularly in young women. I know not to what extent this is carried in other places, but it is an alarming evil in this vicinity. Within the bounds of my parish, (I am trying to fight, in word and deed, all forms of evil,) there are no less than *four* young women whose physical and mental vigor are entirely wasted, and who, if they do not die from its effects, must lead miserable lives, a burden to themselves and to every one else.

"One of these young women says that this is a common practice with girls of all classes, illiterate and educated, vulgar and refined; and that most, if not all of them, imagine no evil in it, until they learn by sad experience.

"You have taken a noble stand regarding 'fashionable murder.' If you have any such attack on physical, mental and moral suicide, I wish to obtain it. If not one of your own, can you tell me where I can find something that I can, with perfect propriety, (I am not over fastidious), give to young women and circulate freely among them. If there is no such book, would it not be doing a good work, blessing humanity and serving God, to take steps for its preparation. Physicians must do this, but all good men will back them in it."

As to treatment. I have endeavored to indicate, in a general way, that this must vary with each individual case. If ascarides or pediculi occasion the pruritus, they are, of course, to be remeved. If hæmorrhoids or anal fissure exist, excise the one, and for the other, rupture the sphincter ani by sudden distension by the thumbs, as suggested by Van Buren, of New York, this being generally, by far, the most satisfactory method of treatment. A careful examination is, of course, necessary to ascertain if the irritation be not reflex, and the result of some uterine or ovarian disease. The procedure carried to such outrageous extent by Mr. Baker Brown, of London, of treating cases of insanity and epilepsy, whatever their causation, by excision of the clitoris and nymphæ, I of course, condemn, as I do every variety of merely routine treatment. There is no doubt, however, that Mr. Brown's suggestion was, for certain exceptional cases, a step in the right direction. The gentleman carried his practice too far: he pursued it sometimes without the knowledge of the patient or her friends, which is always improper, and he showed a degree of cowardice when professional discussion reached its height, which was utterable inexcusable. Yet for the Obstetrical Society to have talked of unjustifiable and irreparable mutilation, is alike unscientific and absurd. They could legitimately expel their member on the grounds of quackery or untruthfulness, but if they had attempted to do so for the reason that he dared essay an operation which, in certain instances, has alike theory and success in its favor, their action would have been met by the protest of the world. As for myself, I have now, in several instances, excised one or both nymphæ, for pruritus and self abuse, with success; in these cases they were hypertrophied. I have, in other patients, excised the clitoris for the same indications, but in no case with benefit. Not unfrequently, however, the application of potassa or the actual cautery to the cervix uteri, or the introduction of some alterative agent into the cavity of that organ, has sufficed to effect a cure. Quite often the bromide of potassium, exhibited by mouth, will be found of great advantage. I give it not in the trifling and almost useless doses in which it is ordinarily employed, but from one to two *drachms* every evening, so as at once to ensure sleep and quiet the irritable base of the brain. In some instances, no doubt, marriage is indicated; in others, where conjugal intercourse is already excessive, lessening its amount occasions relief. I take occasion here to record my disbelief, so far as the woman's health is concerned, in long engagements; agreeing perfectly in a remark made in a late number of the American Journal of Insanity, by Dr. Isaac Ray, then Superintendent of the State

ing in extent, is a good rule for the excised piece in most cases. The other extremity is now to be turned out and treated in the same way, and this terminates the dissection, leaving only the wire to be inserted. For this purpose holes are bored in each extremity with a good bone drill, larger than the wire, at a little more than half an inch from the end, and through one wall only. A pure silver or plated copper wire is inserted from without inward in one end, and inversely entered in the medulla from within outward in the other; the size of the wire ordinarily used is No. 10 of Stubbs's iron wire gauge. The ends are brought together accurately, and the wire twisted long enough to protrude at the external wound. The incision is then brought together by sutures, leaving an abundant exit for pus, and the apparatus is applied.—*Boston Med. and Surg. Journal.*

Chlorocarbon a Substitute for Chloroform.—Professor Simpson (*Medical Times and Gazette*) has found the chloride of carbon, or chlorocarbon, to be nearly allied to chloroform in its physiological action. It is slower to act and its effects continue longer. It depresses the heart's force in a dangerous degree when used as a general anæsthetic. For topical use, however, it seems preferable. The vapor has been injected into the vagina and rectum, in painful affections of those and the neighboring organs, with the best results. Ten to twenty drops injected subcutaneously were efficacious in relieving local pain, without producing the distressing nausea so often consequent on the use of morphina. The agent is but little known, and is not yet to be found in the shops.

The Empress Charlotte—We regret to learn that the mental condition of the Archduchess Charlotte, Empress of Mexico, shows no signs of improvement. Under the stress of the peculiarly distressing symptoms with which mental alienation is accompanied in her case, the committee who have been charged by the Emperor of Austria with the administration of her affairs and her personal charge, have proposed to have a consultation of eminent European alienists, naming for the purpose—Dr. Griesinger, Berlin; Dr. Morel, Paris; and Dr. Maudsley, London.—*British Medical Journal.*

By a Richmond physician, of large experience, it is stated, that pulverized resin is the best styptic known. It will succeed when others fail. It is to be used on cotton or lint.—*Richmond Medical Journal.*

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ART. I.—RÉSUMÉ OF FORTY-SIX UTERINE SECTIONS. By MONTROSE A. PALLEN, M. D., Professor of the Institutes of Medicine and Gynæcology, in the Humboldt Medical College, St. Louis, Missouri.

[CONTINUED.]

CASES VII., VIII., XIII., XIV., were simple bi-lateral sections of the cervix and internal os, for dysmenorrhœa, the result of fibroid interstitial and inter-cellular deposit, with narrowing of the canal of the cervix. The results were as follows:

No. VII. Relieved of the dysmenorrhœa, and partially cured of attendant endo-cervicitis and endo-metritis, because she left the city on account of the cholera, before the treatment was finished; the operation having been performed on the 9th of August, 1866. I have heard from her several times since, and she reports "great relief, scarcely any trouble," but no conception.

No. VIII. Operated on the 14th of August, after being five years and a half sterile; menstruated painlessly on the 29th; also on the 25th of September; also on the 23d of October, and on the 24th of November. Her husband returned home in December, and she was confined after a most rapid and peculiarly easy labor, with a healthy female child, on the night of October 2d, 1867.

No. XIII. Operated on the 27th of August, 1866; menstruated painlessly on the 19th of September; chromic acid and iodine applications as usual, until the 17th of October, when menstruation was again painless; occasional iodine applications for six weeks afterwards, and every menstrual period since normal; no endo-cervicitis, and no leucorrhœa. She is unmarried. The result is perfect cure.

No. XIV. Operated on the 18th of October, but she left the city immediately after the next menstrual period, which was painless. No subsequent treatment. Heard once from her since, about a month afterwards; the second menstrual period likewise normal. The result is unknown, but probably favorable, as she promised to let me know if any of the old troubles came on. There was no leucorrhœa at all in this case, and not much endo-cervicitis.

Nos. IX., XI. and XII., were cases of ante-flexion in a greater or less degree, and treated precisely, as far as the sections are concerned, as was case VI. These were operated upon respectively, on the 16th of August, 18th of August, and 22d of August.

No. IX. was ameliorated. No. X. died of cholera six weeks after the sections, but had menstruated painlessly, twenty-one days after the operation, viz: on September 12, and was in the best health she had enjoyed for years, but unfortunately was a victim to the epidemic, about the first week in October. No. XII. was treated after a painless menstruation on the 21st of September, by the usual chromic acid, iodine and hot water applications, and I ceased attendance in November. She has been perfectly free from all uterine trouble since the operation.

CASE X. Mrs. ———, a widow, aged 26, strumous habit, tall, flabby and generally cathectic. She had been very roughly handled by some soldiers, during the winter of '62, who drove her from her burning house, barefooted, and covered only with her night-clothing, into the snow. She was four months gone in the family way, and from the

brutal treatment received, miscarried the second day afterward, in a barn near by; her feet were also frost-bitten. She had a fearful hemorrhage at the time of the expulsion of the fœtus, and was carried in an ox-wagon some twelve miles, on the next day, over a frozen road. Her recovery was very tedious, as frequent hemorrhages made their appearance. During the subsequent five years, she was a martyr to ill-health, from the exhausting losses of blood during the inter-menstrual periods, and from excessive pain during the catamenial flows.

Such was the history of this case, when I saw her in August, 1866. Care, poverty, ill-health and grief, had done their work, and a once proud and beautiful woman, was a wreck of suffering and trouble. The menses had just ceased, and were profuse and painful. The touch per-vaginam revealed a cervix, at least two inches in length, with an os large, patulous and ragged; the fundus could be felt above the pubic margin. The speculum showed the neck as felt, and the ragged edges about the os tincæ proved to be ulcerations. The sound (Simpson's) passed to the internal os without any difficulty, but would not go any farther; in fact, it was with great difficulty that a small probe could be made to enter. The depth of both cavities (neck and body) was four inches. The entire organ was in a state of hypertrophy, of a general interstitial and inter-cellular fibroid character; possibly and probably the result of sub-involution after her miscarriage. Leucorrhœa, the consequence of endo-cervicitis and endo-metritis was profuse and fœtid.

What was to be done in such a condition? Cauterization certainly would not do, because the dangers following a slough in her state would not warrant the risk. The possibilities of pyæmia or pelvic cellulitis were great, particularly if the cause of irritation should remain as long as the period existed for the casting-off of the slough. These points being well weighed, I thought it best to amputate the neck of the uterus, which was overruled by the medical gentleman also

in attendance with myself. Notwithstanding the beneficial result of the operation as performed, in every similar case I would insist upon amputation.

Baker Brown, who is a very scientific surgeon, notwithstanding he has been very much abused, advises sections (or mutilations) of the neck, for the purpose of promoting contractions or *shrinkage* of the longitudinal fibres, and also to arouse an adhesive process which tends to give tonicity and permanence to the resolution—inflammation. It was determined, therefore, to operate for the menorrhagia and the dysmenorrhoa at the same time, and consequently the ordinary bi-lateral section of the internal os, together with a quadrupling of the cervical incisions, was performed. No extraordinary hemorrhage ensued, notwithstanding the gush of blood supervening upon the division of the vaginal mucous membrane covering the cervix. The usual glycerole-iron cotton dressings were made, and the patient got up from her bed on the twelfth day succeeding the operation. No hemorrhage manifested itself until the next menstrual period, which took place on the 13th of September, and which was painless, but profuse; lasting, however, but four days. The sound was introduced without difficulty, and the depth of the cavities was but three inches, a diminution of one inch in less than a month. Her general health began to improve, and after a local treatment of chromic acid, iodine, and solution of sesquichloride of iron, alternated for about three months, the uterus assumed about its normal size, with the exception of an elongated neck. The ulcerations healed, the leucorrhœa ceased, no hemorrhages reappeared, and the patient was completely restored, so much so, that she now works a sewing-machine about ten hours a day, without much inconvenience. Why amputation of the neck of the uterus would be preferable in such cases, is readily apparent when we recollect, that by it we accomplish all done by the simple sections or mutilation, and that we get rid of

a redundant neoplastic formation which is never completely absorbed, and which requires destruction by caustics, or excision.

Amputation of the neck of the uterus is by far less dangerous than total destruction or "melting down" by the disintegration by caustics. Hugier, Sims, Greenhalgh, and others have demonstrated by results, that for such a formidable operation, there is none less dangerous in the range of surgery. Besides, we can make the stump heal as kindly as any wound about the vagina, by means of a simple approximation of the cut mucous surfaces with silver wire sutures.

The "uterine element in practice" is now being very well understood, even by young men, and if Greenhalgh only lost one case out of three hundred sections, that is no reason why such a formidable array of opposition to all uterine improvement should be *crusaded* against Gynæcology. Fashion sometimes leads fools into foppery, but the extravagance of absurdity in dress, is in no wise to be compared to the prejudices of psuedo—eccentricity in running a muck against scientific research.

The names of Simpson, Sims, Barnes, Greenhalgh, Routh, Savage, Emmet, Baker Brown and Horatio Storer, loom up in magnificent array, living monuments of fame, and who are barriers of adamant, through which the penny-whistles and pop-guns of their adversaries may never hope to penetrate. Gentlemen, of anti-uterine propensities, send argumentation, facts and reason! Ridicule, *reductio ad absurdam*, and squibs are all very well in their places, but in *scientific* (?) *medical journals* such appear as sour grapes, and savor much of master Reynard the fox—minus his tail!

Case XV. Mrs. S., aged about 30, of excessively nervous development, strong willed, quick intellect and very sensitive. She had been for four years or more, a great sufferer from dysmenorrhœa following a miscarriage. Her attending

physician had in vain attempted the introduction of Simpson's sound, even after the canal of the cervix had been fully dilated by means of sponge tents. He had recognized from the occasional tenesmus, and the globular frundus in the rectal cul-de-sac, that a retroversion existed, and had not been able to even inject the cavity of the uterus with any fluid whatsoever. It must be borne in mind, however, that the attempts were made through the ordinary round glass, or bi-valve specula.

I was requested to see her on the 22d of October, when the history of the case was received from the patient herself. A digital examination revealed a hard mushroom neck about an inch and three quarters in length, with an os about the size of a pea, not round, but irregular in shape. The Douglas cul-de-sac was filled by the fundus of the uterus, and although a retroversion existed, it was in reality but symtomatic: the trouble being retro-flexion. The shape of the entire organ felt very like a pear bent upon itself, and was about as large as an ordinary one. The Sims-speculum was then used and a small flat probe, bent so as to correspond with the flexion, (after the uterus was steadied by the tenaculum) was introduced without the least difficulty. So easily did it slip by the internal os, that the medical gentleman who had requested me to see her, exclaimed that it was the result of an accident. He, however, after a more careful exploration, passed the probe himself with great facility. Here was the analogue of case VI, and equally well marked, only the former was ante-flexion. Believing that the retro-version would be gotten rid of, if the flexion were overcome, and being satisfied that the dysmenorrhœa was occasioned by the mechanical obstruction, produced by the knuckling, I proposed an operation, to consist of a division of the knuckling, conversely of Emmet's anteflexion operation. This was explained to the patient, who consented gladly, and was willing, "even for experiment" as she expressed it, to make the effort. Her next menstrual period

was about approaching, which came on during the next week, producing the usual excruciating agonies. It ceased about the 3rd of November, and on the 6th, a section of the *anterior* wall of the cervix was made, and the *knuckling* through the mucous membrane and some of the uterine tissue *posteriorly* divided, by the usual scissors, tenotome, and uterotome cuts. The hemorrhage was very slight, and the glycerole-iron cotton dressings applied as usual. In about two weeks afterwards she was obliged to move her residence, and notwithstanding a certain amount of unusual fatigue, and travelling about the city during some very disagreable rainy weather, her next menstrual period came on early in December without any pain. So well was she, that after a few applications with chromic acid, and iodine, to the cavity to relieve the endo-cervicites and endo-metritis, that we yielded to her earnest solicitations for permission to visit some relatives in New York. She left St. Louis in time to spend the Christmas Hollidays with her friends, and returned about the end of January. As was to be expected, she "took cold" in her travels, and the January term was in a measure painful, with an aggravation of her old tenesmus and nervous symptoms. We saw her together about the end of January, but the patient had become so distressed and discouraged, that she declined any farther treatment. She said she would never do anything more, that the experiment had failed, etc. However, I saw her again, accidentally, early in February, and upon a careful questioning, she stated that she was satisfied that the axis of the uterus had become almost if not entirely restored. I made no examination, but suggested that she should use hot water injections, and use largely of the bromide of potassium: the former to relieve the turgescence of the uterus the latter to overcome the nervous troubles, such as sleeplessness, pains in the crown of the head, and the soles of the feet. Notwithstanding the endo-cervicitis and endo-metritis was not cured up, so satisfied was I that all would

come right that I did not feel discouraged, because I knew that her resiliency of temperment was remarkable. The hot water did relieve the disagreable acridity and tension about the utero-recto-vaginal spaces, the bromide of potassium quieted the cerebro—spinal axis, and her next menstrual period was as painless as was the first one after the operation. Why the hot water and bromide went far towards her relief, is readily understood, when we recollect that the uterus had been bound down by the knuckling about the internal os, for more than four years, and that, it, together with the vagina, the bladder and the rectum, had become accustomed to their abnormal relationship; and, that when the resilient elasticity of the uterus had been developed by a section through the knuckling, the long continued abnormal positions were deranged, and a rectification by normal position was in reality an abnormal one, because the blood vessels, the tissues and the nerves had to be once more educated to their new conditions. Hot water aided the vessels and nerves to reassume their natural parts by the promotion of absorption, and the bromide of potassium deadened, as it were, the nervous sensibility, until it had become accustomed to, and satisfied with the change of abode produced by an altogether different position of all of the viscera within the true pelvis.

I have seen the patient many times since, and her statement is that she is cured of her dysmenorrhœa. Her general health is good, and the result in this case is most satisfactory.

Case XVI. This was a case of a negro-girl, a virgin, who was very fat, and who had been treated for sore throat (for more than two years,) which made its appearance at every menstrual period. The thyroid gland would enlarge, and a feeling of choking would make its appearance, evidently the *bolus hystericus*. A laryngoscopical examination revealed no appreciable trouble about the pharynx or vocal chords. She was irregular in her menses

and could never be sure when they were to make their appearance, and when they did come, were very painful. A very rigid examination about the heart failed to detect any trouble there—chemical tests and microscopical examination of the urine developed nothing, save an excess of the urates and occasionally some of the phosphates. I was at a loss to account for her trouble, but from the fact that most of her symptoms began about the menstrual period, and shaded off towards amelioration, when it ceased, led me to suppose some uterine difficulty. An examination was proposed, and accomplished with great difficulty, from the fact that she was very fat, with a hymen and an extraordinary rigid perineum. Nothing could be accomplished in the left lateral semi-prone position, and she had to be put on her hands and knees, when with some little difficulty the cervix uteri was exposed. The probe revealed a decided anteversion with anteflexion. An operation was proposed, and performed on the 15th day of November. The sections were such as were performed in case VI. Her first and second menstrual periods were painless, with some amelioration of the throat troubles, but notwithstanding all efforts to prevent the reappearance of the flexion it has since developed itself, and the result is not satisfactory: it is a failure, from the fact that she is so very fat. Obesity is a disease, and fat women never menstruate perfectly well, and unless they conceive and bear children, are from their very natures prone to dysmenorrhœa. Why such is the fact leads us *ex necessitate rei*, into the nature of menstruation, the peculiarity of uterine tissue and the causes of flexions. Fat women who are unmarried never can have much prospect of amelioration from dymenorrhœa. I shall never advise the sections to be made in any woman of such obesity as would lead me to suspect fatty degeneration of any organism whatsoever. Stout muscular woman have no such objections to be urged against the tissue of the uterus. Where fat women (with obesity proper) are married,

the possibility is, that conception might take place when the mechanical bar to the ingress of the spermatic fluid is removed, and consequently the operation for such is justifiable. These generalizations concerning the adipose, are the result of certain known laws of physiology, and clearly point to the fact that the uterus is particularly prone to fatty degeneration, even if the woman be not at all fat, and particularly more so, should she be afflicted with obesity. One great fact in the history of nearly, if not quite all uterine troubles *per se*, can be dated from some abortion, miscarriage or delivery in the female who has had sexual congress, and in the virgin to a certain period of menstruation, and sometimes from its very incipiency. Why it is so with virgins, is owing to the fact that menstruation is the analogue of parturition; it is in reality a "little labor," and for the reason that at every catamenial discharge the epithelial scales of the mucous lining of the uterus, are cast off, and even a denudation of the whole tissue may take place. The probability is, that this decadence of an entire membrane could not take place without certain changes in the uterus proper in the adjacent subtissues, because of their intimate connexions by and through the connective tissue, the blood vessels and the nervous fibrillæ. There can be no absolute line of demarcation between the mucous membrane of the cavity, and the tissue of the uterus itself, as far as physiologico—pathological conditions are concerned. To elucidate more clearly this point, the consideration of the menstrual flux is necessary. Before an attempt at such elucidation, I will simply state that my belief is, that *menstruation is coincident with, not dependent upon ovulation, and consists in a flow of blood (by osmosis and by rupture of vessels,) from an hypertrophied lining membrane of the uterus, analogous to that which is found in the child-bearing state.*

It is well known that the pre-menstrual state of the mucous lining is one of turgescence, of enlargement of the capillary vessels, ramifying in the glandular interspaces, and a

swelling of the tubular glands, and, that, a fecundated ovule is thereby retained in the cavity of the uterus, mechanically debarred from passing into the vagina. Furthermore, the membrane thus changed is ready to furnish nutritition for its development, should an ovum be deposited in its folds.

At the age of puberty the uterus takes on a series of changes, by which it is prepared to give nourishment to the fecundated ovule, provided such is deposited in its cavity. Should no fecundation occur, menstruation ensues to relieve the highly congested membrane, and, as has been observed by Hanfield Jones, Tyler Smith, Sir J. Y. Simpson and others, the membrane itself is sometimes discharged. This process is renewed again and again, unless conception should take place to interfere with it, and then the fluids of the membrane go to furnish nutrition to the embryo and its membranes. *The exudation of the blood is then due to the breaking up of the mucous structure,* and the time of the periodical decadence and its renewal, is what is known as the menstrual period of woman's life. Dr. M. M. Pallen (my father) has for more than a quarter of a century promulgated this doctrine. From certain changes of the uterus after parturition, complete or incomplete, and also (I believe) after each menstrual period, I think the frequency of uterine flexions can be explained, and also the irregularities of menstruation in all fat women. Dr. Emmet's belief is that the "knuckling" in all cases of anteflexion has undergone a fatty degeneration, my idea is that such is the cause of all flexions, not produced by the presence of a neoplastic formation, such as a fibroid tumor, etc.

Virchow, Rainey, Heschl and Franz Kilian, have demonstrated certain physiological changes which occur after parturition, and which have likewise been observed by Drs. Robert Barnes, Druitt and Priestly, that the uterus undergoes rapid metamorphosis to and from fatty degeneration by and through the flibrinous and corpuscular products of inflammation.

The uterus during pregnancy increases very much in size, and its growth is the result of enlargement of its embryonic fusiform cells, and by the time that parturition takes place these cells are increased from seven to eleven times their normal size, and are known as "colossal cells." And, *pari passu* with their growth, there is a new generation of cells, principally in the middle and inner muscular layers, and occasionally on the external layer. In the earlier months of pregnancy there is great activity of new formation, and is thought to cease altogether after the sixth month, at which time embryonic cells alone are developed; and, at full term, therefore, we meet with the "colossal" fibre cell alone. From the muscular fibres contained in them, the ligaments likewise increase in size, and become intimately blended with those of the uterus. Of course, after the supervention of labor, these colossal fibre cells are of no further use, and in a very short period of time, the uterus diminishes in weight from twenty-four ounces to about one ounce and a half. According to Tyler Smith, who quotes from West and the above mentioned authors, this "necessary involution of the uterus is effected chiefly by atrophy and fatty degeneration of the colossal muscular fibres, and the absorption and removal of the fatty matter through the kidneys, the mammary glands, and the *internal surface of the uterus itself.* The whole uterus becomes soft: it is difficult to insulate individual fibre cells from their *excessive friability,* and they are found to be *studded with oily particles in their interior.*" Dr. Priestly states that he has seen uteri so friable from fatty degeneration that unless the greatest care were exercised a sound entered as a means of diagnosis might be readily pushed through the walls into the peritoneal cavity.

Believing that menstruation is the analogue of labor, and knowing that the uterus undergoes involution and devolution, by atrophy and fatty degeneration, we have the clue to, if

not the explanation of the frequency of uterine flexions. Owing to the weakened state of that organ after either of the processes of menstruation or parturition, any cause, such as a distended bladder, or rectum, a fall, the weight of the superincumbent viscera, tenesmus, or even coition may induce a bending of the body on the neck, or vice versa, and that the presence of oil globules in its tissues, prevents its erectility or contractility, or that a more lowly organized structure having taken the place of the original proper muscular tissue, it lacks the peculiar motility to such, and the flexion remains and increases until it becomes complete, unless a fortunate pregnancy supervene, which would arouse the latent energy of the lower structure, and urge it onward to the higher structure of the parturient uterus. When conception fails or cannot be looked for, art intervenes, and this résumé is intended as an illustration of the results of artificial interference. To the excessive development of fat in the uterus of Case XVI, is evidently due the failure of the operation.

CASE XVII. Mrs. O'S——, an Irishwoman of sanguine temperament, congenitally sterile, and very nervous, marked retroflexion with retroversion. Operated on the same day as Case XVI., by the antero-posterior bi-sections, dividing the knuckling thoroughly. Usual dressings and after treatment. Menstruation less painful each month, until March, 1867, when conception took place. I have heard nothing of her since.

(TO BE CONTINUED.)

THE OPERATION FOR THE CURE OF DOUBLE HARE LIP, BY A NEW AND IMPROVED METHOD, by A. HAMMER, M.D.

The section on Surgery, of the American Medical Association, at its meeting in Cincinnati, in May last, having honored me by the request that I should prepare a full report on the progress in surgery, concerning the treatment of

Hare-lip, to be presented at its next meeting, to be held in Washington, in May, 1868, it does not now become me to treat at length on this subject, in our Journal. I will therefore confine myself solely to the description of the method, which I have, for the last five years, adopted in all cases of double hare-lip with fissure of the palate.

During a quarter of a century I have had frequent occasion to operate for hare-lip, in all its various forms, single, double and complicated; and I freely confess that for twenty years I was never satisfied with the results obtained, though mine were, on the average, not worse than those of other Surgeons. I was frequently amused by looking at plates, where cases of hare-lip were pictured, before and after operation, showing beautiful and perfect results, whereas a comparison between the copy and the original would not have given a very flattering impression as to the ability or truthfulness of the artist.

The unsatisfactory results obtained in my own former practice, and present practice of other Surgeons, did not, and do not depend so much on the want of individual skill, as upon the intrinsic difficulties inherent to the nature of the lesion itself, and the deficiencies of the means employed to correct the deformity. The main points to which the frequent failures in double hare-lip with fissure of palate must be attributed, are: The rarity of union by first intention in the soft parts, or union of one portion with non-union or connection by ligamentous mass of the remainder; the infrequency of firm union of the intermaxillary bones with the lateral alveolar arches, and the resulting unevenness by lack of proper adaptation with regard to the convexity of the entire superior alveolar arch; the frequent mutilation of the nares, either by closing them up, or leaving them widely separated, the flat nose in the superlative.

Nearly all the difficulties with which the surgeon has to contend, can be overcome by following the method of operating which I have adopted.

The operative procedure consists of two steps: First, to bring the maldirected, intermaxillary bones into proper position and to make them fit exactly the opening left in the middle of the alveolar arch. This I accomplish by excising a triangular piece of the septum of the nose, of such an angle as to correspond to the angle made by the projecting inter-maxillary bones with the arch. After it has gently been moved downwards and backwards, the surgeon can judge how much or how little is to be cut off on one side or both, that the gap may be exactly closed. I give preference to this method of changing direction over all others.

Second: To separate, as may be required, the middle lobe from the intermaxillary bones, then to freshen its edges as well as the margins of the lateral parts of the lip, resorting if necessary to auxillary incisions in various directions according to the peculiarities of the shortening in the soft parts, accompanied by free and extensive incisions over the underlying bone so as to allow of great mobility of the lip. This being done, and the hemorrhage arrested, I apply a sustaining suture, which is in fact a quill-wire-suture, at a proper distance from the edges, to be united. Two pieces of common, smooth lead pencil, from one and a half inch to one and three-fourths of an inch in length, and a strong needle armed with a double wire of a size larger than is ordinarily employed in the usual wire suture, are all that will be required. The needle is passed through the entire thickness of the upper lip on a transverse line, striking the point of union between the septum and intermaxillary bones. The needle is made to transfix the integument from without inwards on one side, at a point half an inch posterior or outwards from the nostril, and through a corresponding point, but from within outwards, on the opposite side, and now the two pieces of pencil, one on either side of the face externally, are fastened by the double wire. Another similar suture is applied

in the same manner and attached to the same pieces of pencil, about half an inch below the first, more near or remote according to the length of the intermaxillary bones, over which, that is to say in front of which, both wires must pass. By this means we accomplish a complete relaxation of the soft parts, all tension of the muscles being overcome the corresponding portions of the cut edges can now be readily approximated, to do which I employ the common wire suture—the wire being very small,—finding it less irritating than silk. Thus the operation is completed, no dressing being required except the occasional application of a little glycerine by means of a camils hair pencil, upon the united wounds. The wire sutures should be removed at the end of three days, union by first intention having then taken place, while the sustaining suture may be allowed to remain to the sixth, seventh, eighth or ninth day. The wires of the latter in course of time cut somewhat the soft parts, producing four small, transverse, slightly supurating wounds, which, however, heal without leaving any marked scar behind.

The advantages of the above plan of procedure are so obvious that I need scarcely refer to them, but in brief they are the following:

First, The intermaxillary bones are kept in close contact with the parts with which it is desirable they should unite, by the wires of the sustaining suture.

Second, All strain on the lips being removed, the soft parts must unite by first intention, it cannot be otherwise provided all chemical or mechanical irritants are wiped from the wounds, which can so readily be done by a hair pencil.

Third, The degree of relaxation necessary to properly control and modify the future shape of the nares is entirely at the command of the surgeon.

Fourth, The absence of all dressing which would interfere with free respiration and thereby endanger life.

Fifth, The operation is completed at one session, and comparatively speaking, a very brief space of time is required for complete and permanent union.

Sixth, The surgeon is relieved from an immense deal of trouble and constant attention, which is so necessary when other operative plans of treatment are adopted.

Seventh, The results are admirable, thereby not saying too much.

This method is not altogether new, as it has been resorted to, but only partially and for a different object, by Prof. Bruns, of Tubingen. Many years ago he applied a sort of quill suture, passing out one such beneath the nostrils through the septum narium to prevent too great narrowing of the nares, and in one instance he again applied a single quill suture near the free margin of the lip, in an unmanageable child, lest the lower suture when removed might be followed by rupture of the united wound. His fear in this last instance was certainly to some extent groundless, for in five cases out of six the rupture occurs, not near the free margin, but in the neighborhood of the nares.

The actions mainly of two muscles, viz: the levator labii superioris alæque nasi and the levator labii superioris proprius, has to be overcome. The zigomatici and the levator anguli oris are little to be feared, as any one can convince himself by applying his index fingers to the two sides of his lips, imitating my sustaining suture.

Though the meritorious and highly distinguished Prof. Bruns did not apply the quill suture either in the same manner or for the same purpose yet I thought it my duty to show that I was acquainted with the fact though irrelevant.

I earnestly desire the profession to give my modus operandi a trial, being assured it will meet with their approval. Of myself I can, without boasting, affirm that I am not now fearful of any form of complicated hare-lip, no matter

how extreme the case may be, and that I now with pleasure and satisfaction perform an operation which formerly caused me more disappointment than any other one.

Five cases of double hare-lip and double fissure of the palate on which I have successfully operated according to the above plan I will minutely detail in my report to the American medical association.

TUBAL PREGNANCY.—By M. M. PALLEN, M.D., Professor of Obstetrics, &c., in the St. Louis Medical College.

Whilst on a visit to the Hot Springs in Virginia, this summer, a distinguished physician of Richmond, related to me the particulars of the following case:

A lady having gone to market early in the morning, on her return home was seized with great pain in one of the iliac regions. She was in the third or fourth month of pregnancy, (I forget which). She had vomiting, and threw up corn which she had eaten the day before. The doctor being sent for, prescribed for her such remedies as the symptoms seemed to demand. As she was suffering so much, he promised to return to see her very soon. When he came back, her condition was not ameliorated at all. It was worse. The treatment was continued, and the doctor left, returning however at about noon. He then discovered that she was moribund, and she speedily died.

On opening the abdomen after death, a large quantity of blood was found in the abdomen. The Fallopian tube was ruptured, and the embryo had passed out.

A gentleman (Dr. Steele) who practised in Alabama several years ago, sent me a preparation taken from the body of a negro-woman. It was the uterus with the Fallopian tube ruptured, and the cyst which had escaped through the seat of the rupture. The woman was in the sixth or seventh

week of pregnancy. She was suddenly seized with great pain in the left iliac region, became faint and her extremities were cold. She survived but a few hours.

Dr. Meigs says that he has met with four cases of tubal pregnancy, three of which he describes; and he properly enough says: "If a woman experience the signs of pregnancy, such as the changes in the aureole, nausea, pica and malacia, growth of the breasts, extraordinary sensation within the pelvis, &c., and thereupon, when having attained to the middle of the second, or to the third month, be seized with horrible pain in the hypogastrium and pelvis, turn pale, lose the pulse, and faint, I should suspect the rupture of a tube-sac, of extra-uterine pregnancy."

It has happened that a tubal pregnancy has co-existed with an intra-uterine pregnancy. A remarkable case of this nature, is described by Professor Hodge, of Philadelphia. A woman who suffered a great deal from febrile symptoms, was delivered of a fœtus during the fourth month of pregnancy, and then died. On post-mortem examination, a fœtus with membranes and placenta of the same age and size, was found in the left Fallopian tube.

A similar case is described by Duverney. When rupture of the tube occurs, there is hemorrhage; but it does not necessarily follow, that when hemorrhage occurs, there is rupture of the tube. The cyst may rupture, and the hemorrhage may escape into the tube without its rupture, and into the uterus. The cyst may rupture, and the blood accumulating in the tube may so distend it, that it gives way from that cause; or, it may happen that the growth of the cyst itself, ruptures the tube, and then the hemorrhage takes place from the tube.

It is very difficult to explain the causes of tubal pregnancy. It has been supposed to be owing to some spasmodic action in the tube, or the closing of its walls after the union of the sperm-cell and germ-cell at the ovary.

But the cases reported by Dr. Hodge and Dr. Duverney, rather oppose this idea, unless it is supposed that conception took place in these cases at different periods.

I perceive by the analysis given in the Medical and Surgical Reporter of Philadelphia, October 5, of the Transactions of the American Medical Association, 1867, that Dr. Stephen Rogers has a paper on extra-uterine Fœtation and Gestation in the volume. The treatment recommended is gastrotomy, as soon as the tubal cyst bursts into the peritoneal cavity. I have no comments to offer on the plan suggested, as I have not read the paper; the volume is not yet in St. Louis.

Dr. Graily Hewitt, in his work on the Diagnosis and Treatment of Diseases of Women, published in London, in 1863, favors the plan. He says, "If it were possible to make an exact diagnosis of these cases of rupture and hemorrhage during life, it would undoubtedly be better to open the abdomen, and endeavor to secure the bleeding vessels, than to allow the patient to die from hemorrhage."

ANATOMY AND PHYSIOLOGY OF THE CELL.

THIRD LECTURE ON PATHOLOGICAL ANATOMY. Delivered on the 30th of August, 1867, to the Medical Profession of St. Louis, by A. HAMMER, M.D., Prof. of Surgery, Ophthalmology and Pathological Anatomy in the Humboldt Medical College of St. Louis.

GENTLEMEN—

I concluded my last lecture by commencing the study of the elementary parts of the body, by enumerating the component parts of a cell, and by describing to you the differences in cells with regard to their forms. Before I proceed any further, I must anticipatingly tell you that, besides the

many deviations from the typical form, already mentioned, there are still other deviations with regard to the number of the component parts of a cell.

These deviations are:

(*a*) Some cells have no nuclei.

(*b*) Other cells either have no nuclei, or they are concealed by the cell-contents so much, that they do not become visible. The red blood corpuscle, and the epidermis represent the first variety, the polyedric pigmentary cells and the stellate pigmentary cells the other.

(*c*) The nucleus sometimes shrivels and shrinks to such an extent, that there remains but a little spot, as illustrated by old epithelial cells in some localities.

(*d*) Other cells, again, show more than one nucleus.

(*e*) Some cells *do not* possess a cell-membrane, and consequently the cell-contents must be kept together by cohesion. Of one form, the pus-corpuscle or pus-cell, we certainly know this to be true; of others, it is highly probable.

(*f*) Some cells have two cell-membranes, the genuine one and a secondary one, which is formed in course of time, as illustrated by the cartilage-cells.

After this short digression, we will now first consider the cells as to their size, and then study separately the component parts of the cells. They vary very much in size, every one of them, however, being a microscopical object. The largest cell of about .1‴ is the egg-cell or ovulum; as one of the smallest, being about .0025‴, must be considered the red blood corpuscle. Cells of from .02‴ to .05‴ are called very large cells, which we find in the nervous centers, and in the fatty tissue. Most of the cells have a size from .01″ to .005‴.

With regard to the contents of the cells, i. e., the substance filling the space between cell-membrane and nucleus, we know this: It is sometimes, but only exceptionally, a clear, colorless, homogeneous, transparent fluid, sometimes a little colored, as in the red blood corpuscle. More frequently

we observe some very fine granules in the homogeneous contents, which give the cells a slightly dotted appearance, as found in many epithelial cells. The greater the amount of granules, the more uniformly darker they will become, so much so, as to conceal the nucleus, a fact that can readily be observed in several forms of the pigmentary cells, or also in fat-cells, in which the fat, by cooling down, becomes transformed into crystals, so that those fat-cells look like black sperical bodies. Under other circumstances the contentents become more or less inspissated, almost to complete disappearance, or somewhat solidified, as in the smooth, muscular fibre, in which we cannot very well make a distinction between cell-wall and contents.

The cell-membrane is variable in thickness, sometimes extremely tender and delicate, sometimes very strong and resisting. According to our present knowledge, it must be looked upon as the result of peripheral condensation of the contents, a hardening process. It is homogeneous and colorless, not pierced by fine holes or pores, and it mediates the process of endosmosis and exosmosis. Usually entirely smooth, it may sometimes assume a jagged appearance, which however is most frequently the result of exosmosis. By taking up the fluid, it will reassume its original smooth appearance. This can be observed under the microscope at will. By certain chemical agents, the cell-membrane will get rid of the contents, and thus become isolated.

The nucleus offers as many, if not more, deviations from the typical "sperical vesicular" form, as the cell does. Its size varies from .005‴ to .002‴. In average it is of about ,0035‴.

The typical form is, as already stated, that of a sperical vesicle, bound by a very firm and resisting membrane, which is filled by a homogeneous, water-like fluid. Within the contents of the nucleus, we observe one or two or even more granular bodies or dots, usually very brilliant. These are the nucleoli.

The vesicular form may be changed into an oblong [illegible] body, as we regularly observe in the smooth, muscular fibre-cell. Or it may become transformed into a slightly [illegible] dotted disc, as is seen in the cells making up the [illegible] Or the vesicular form may be so much lost, that it [illegible] comes completely flattened and solidified, as in many [illegible] the permanent epithelial cells.

The nucleus is sometimes missing. Its absence may be either real or apparent. You know that the red blood corpuscle in man, differs from those in many animals very considerably. The most marked difference, not considering the difference in size and form, consists in this, that the human red blood corpuscle, during the extra-uterine life, possesses no nucleus, while many animals show beautiful large-sized, nicely dotted nuclei in the blood corpuscles.

The nuclei are apparently missing in the fat cells, for instance, where they are entirely covered by the fat, and they reappear as soon as the fat cell atrophies and loses its fatty contents. Apparently missing, is the nucleus also in pigmentary cells, which contain a large amount of coloring matter, by which the transparent nucleus becomes obscured and concealed. The nuclei occupy either the center of the cells, or are driven to the wall of the cell, thus being either central or peripheral (wall-standing).

The multiplicity of nuclei in one cell, is significant [illegible] proliferating process (growth) in the normal [illegible] the organism and very frequently met with in [illegible] cal development.

The nuclei are, as already above stated [illegible] [illegible] and become regularly so in cell growth [illegible] [illegible] Sometimes they are missing but [illegible] [illegible] so far apparent.

[illegible] now proceed to consider the function [illegible] of the cell in general. In this [illegible] [illegible]

this time, to furnish us accurate data. Most of what we know, is owing to microscopical chemistry. The reasons for this strange fact are very obvious. In the first place it is difficult to separate cells from their inter-cellular substance and other neighboring tissues, so as to get a clear object for examination. And again, the different component parts of cells, as membrane, contents, membrane of nucleus, and contents of nucleus, cannot be isolated; consequently no separate analysis can be made.

Our knowledge is but general, and all we know is that the cells are made up of water, protein (albuminous) substances or their derivatives, fat, and certain mineral substances. The most important are, doubtless, the albuminous substances, which however appear under forms widely differing from albumen. We are not always certain, whether those modified albuminous substances do exist as such in the cells, or whether they are artificial products, generated by the chemical analysis.

Furthermore we know that on the addition of certain chemical agents, there exists a different reaction on the part of cell-membrane, cell-contents and nucleus, thus showing a difference in their chemical composition.

The cell-membrane varies in its properties, and consequently in its composition, in regard to both the age of the cells and to the locality in which it appears. In embryonic cells, and likewise in epithelial cells lining glandular structures, in the younger layers of laminated epithelium, and in the red blood-corpuscles *in the adult*, the cell-membrane proves to be a condensed albuminous substance, being readily dissolved and easily destroyed when exposed to the action of diluted solutions, either of acetic acid or of alkalis. In all other cells in the adult, with the exception of those just enumerated, the membrane seems to consist of elastic tissue, or at least of something very similar to it, as it shows all the reactions of the elastic tissue proper, in that it is scarcely soluble in potassa and soda,

and that it resists almost all other chemical agents. It is hyaloid and transparent, and endowed with great refractory power. It resists putrifaction in a marked degree, as is well illustrated by the connective tissue corpuscles, the osseous corpuscles, and the horny tissues.

The cell contents, filling the space between membrane and nucleus, are either fluid or in a semi-solid or completely solid state. They are often quite homogeneous, but sometimes of a granular appearance in consequence of fine particles of an albuminous or fatty nature being precipitated and kept suspended. Fat very frequently is not only present in fine granules, but in drops, which may grow larger, so as to fill the entire cell. Pigmentary substances as haematin, melanin, &c., as found in the blood and in pigmentary polyedric or stellate cells change the aspect of the contents very considerably. All the above enumerated substances contribute to make up the contents. That the Protein-substances form a part, is quite certain. But we are not able to determine in every instance under which form they are represented. In a few instances we know this pretty well. The albumen is represented in the blood by its derivative "globulin," in the mucus by "mucin," in muscle by "Syntonin" in the horny tissue by "Keratin." Beyond this our knowledge does not go.

It is a well known fact that the albumen is very accessable to a transformation into other substances, called its derivatives. Some of those derivatives form a part of the contents in certain cells, and are thereby of a high importance in the human economy, I mean the fermenting substances which induce a chemical decomposition and new combinations in other substances, with which they come in contact. Thus we know, that the Saliva, the gastric and the pancreatic juice contain those substances, and these are generated by the cells of these organs forming a part of the cell-contents.

Our knowledge of the relative proportion of the component

parts in the cells (quantitative analysis) is extremely deficient with one exception, that of the red blood-corpuscles of which I shall say something when treating upon the vascular tissue.

With regard to the vital phenomena manifested in the cells, we observe two series of functions, the one of a mere vegetative, the other of an animal character By the vegetative functions of the cells we understand growth, nutrition, (intersusception and elaboration of nutritive material, waste and disintegration and elimination of waste), proliferation (propagation), and transformation into other elements with regard to form and contents (metamorphosis). The animal function consists in a peculiar contractility, with which some cells are endowed.

Growth. This can only take place by the cell gradually imbibing more nutritive fluid (endosmotic process) and thus increasing the amount of the cell-contents. Naturally the cell membrane must also grow. This enlargement might be produced by a mere stretching. But the fact, that usually the membrane likewise increases in thickness, necessarily leads to the belief that particles of the cell-contents are deposited within the substance of the cell-membrane in such an aggregated manner as to give rise to an increase in every direction. Most frequently, as already above stated a chemical change in the substance of the cell-membrane is connected with its growth, *it becoming elastic.*

The latitude of growth in cells is very variable. Some cells never assume a large size, while others, for instance, the smooth, muscular fibre cells, or fat cells, may reach an extremely large size. All cells are in the beginning of a more indifferent character and, but during growth acquire their specific character, with regard to form. This, however, depends again to a great extent, upon the surrounding media, which by exercising pressure frequently may influence the ultimate form of the cells. To this I have already directed your attention in a previous lecture.

The growth of the nucleus takes place as far as we know, in the same manner as in the cell, yet most frequently the nucleus does not grow on so large a scale. Remember on the other part, that the nucleus sometimes, in consequence of the cell growth, disappears, either apparently or in reality—and that in other instances it diminishes in size as the cell growth progresses.

Nutrition of cells. After the cells were fully grown, they have to maintain themselves as such (for a certain time at least). This process is called nutrition. Nutrition takes place in a two-fold direction, first to sustain the individuality of the organism of the cell, and second to serve a greater end in maintaining the integrity of the entire organism. The first may be called the egotistic, the second the general or subservient nutrition.

Nutrition of cells may properly be compared to chemical action taking place in a self-regulating crucible. The cell-membrane, permeable for fluids, admits in virtue of endosmosis, dissolved substances which are diffused through all tissues and thus surround the cells. Those fluid substances are either taken into the cell cavity without undergoing further changes, and serve as nutritive material, or they are transformed into other substances by chemical action. This latter process is beautifully illustrated by the metamorphosis of the white Blood corpuscles into the red and by the elaboration of Haematin within them or by the transformation of protein substances into mucus, or of saponified fat (as it exists in the blood) into neutral fat, &c. These substances produced by cell-action within the cell are now adapted either to nourish the cell in the egotistic sense, or to furnish material for further and higher purposes in the organism, as for instance, in the various secretions of glandular organs, Saliva, gastric juice, bile, ovulum, spermatozoa, &c., or to be eliminated out of the organism through numerous emunctories in order to free the system from obnoxious substances.

These obnoxious substances are the result of waste and disintegration of the tissues; and consequently waste, disintegration and elimination are the indispensible companions of intersusception—they are a necessary element in nutrition and they are mediated through the process of exosmosis.

With regard to all these processes our knowledge is very much limited, or in other words, the mechanism of nutrition in its innermost nature is not yet well understood. Schwan tried to explain these peculiar properties of the cells by admitting a metabolic power of the cells.

We know only this much with certainty, that the contents of the cells are the most changeable part, while cell-membrane is the most persisting and least changeable.

The magnitude of nutrition, that is, the actual amount or degree of nutrition is subject to great variation. In some tissues, as for instance, in epidermis, cartilage, crystalin lens, horny tissues, it goes on very slowly, while in the so called higher tissues as in nerves, muscles, &c., we are compelled to admit, that it takes place in a rapid manner.

I must direct your attention particularly to the fact that, from all we know, there never can be absolute rest, quiet or cessation of action within the cells. A cell, in which all chemical action and interchange of material has ceased, *is dead*, and it will be eliminated.

The elastic character of the cell-membrane led Mr. Donders to a very ingenious explanation of the mechanism of nutrition. He, very properly, states that the cell-contents are exposed to a higher pressure than the surrounding diffused fluids, in as much as they have to stand first the general pressure and then another one from their own elastic membrane. He calls, therefore, the elastic membrane (according to its higher or lower tension) the regulator of the nutritive process.

Besides those secretory functions of the cells already spoken of, I have still to make a few remarks concerning

the secretion of a more solid substance furnished by the cells. I have already alluded to the fact, that some cells have two membranes instead of one. We see this most splendidly in cartilage cells, which, as they progress in growth and age, show a secondary membrane sometimes very thick around the first membrane, covering it, offering a striking resemblance to vegetable cells. This is generally looked upon as being secreted from the cells themselves, though there are many who interpret its formation by admitting a precipitation from the intercellular substance upon the cell-membrane.

In some forms of the cylindric epithelium, particularly that lining the intestinal tract, we see something similar, but only to a partial extent. On the top of those cells are seam-like membranes superposed, which are pierced by numerous holes, and which on the application of some reagents may be detached, leaving the cells intact. These membranes are likewise said to be secreted by the cells. Their origin from the cells cannot be doubted, as a precipitation of organized substance from the intestinal canal upon the top of the cells would be incomprehensible.

In the cutis and in mucous membranes there is to be seen immediately beneath the layers of epithelial cells a fine, colorless and structureless, homogeneous membrane, (Henle's intermediary—and Todd & Bowman's Basement-membrane.) Descemet's membrane belongs to the same category.

The various forms of glands possess also a membrane of quite similar structure, which surrounds and holds together the glandular cells. This membrane detached from the cells, is either tubular-or sacciform-or otherwise shaped according to the peculiar form of the gland.

All these membranes have likewise been looked upon as having been secreted by their lining cells, a view, however, which, considering all the circumstances, cannot anymore obtain.

In finishing the study of the general characters of the cells it remains for me to say a few words of the animal life, as revealed by certain functions, in the cells.

Some cells possess a high degree of contractility and of change of form consequent thereon. I shall not describe here, what has been observed in the lowest monocellular animals or in embryonic cells, but only select those cells, with which you are more familiar. The smooth muscular fibre-cell, as was first pointed out by Koelliker, and also the primitive bundle of the striated muscle (which, according to Remack, is but a transformed cell) show the phenomenon of contractility and motion most beautifully by becoming shorter and thicker in the state of contraction, and longer and thinner when relaxed and at rest.

But other cells besides those named, as the white blood corpuscles, mucus corpuscles and pus-corpuscles, the pigmentary stellate cells show similar and even more striking changes of form, for which we are particularly indebted to Max Schulze, Recklinghausen, Otto Weber, and others. Those cells can, as long as they are alive, assume all possible forms and become mono–or bi–or multipolar by shooting out a number of processes, and finally reassume the original form. This is, as already hinted at by O. Weber, very important with regard to certain pathological phenomena, of which I shall treat hereafter.

Parts of cells are also endowed with contractility as will be beautifully seen in the motions carried out by the cilia of the ciliated cylindrie epithelial cells in various organs of the body.

And finally, nuclei or elements furnished by the nuclei as for instance, the spermatozoa are contractile in the highest degree and display under the microscope the motary power in a striking manner.

Let us now pass to the consideration of the intercellular substance. The elementary parts or cells do not always coalesce, but are generally separated from each other by

intervening substance. This is sometimes fluid, as in the cases of the blood and lymph. In other structures the cells seem to be so intimately coherent that there appears to be no intercellular substance intervening. This, however, may be only apparent. Others again are united by a scanty substance only. This intercellular substance may be perfectly colorless or may be colored, being sometimes of a milky appearance, again it may be fibrillated, or fibro-reticulated, as is the case in one form of cartilage.

As far as the chemical composition of the intercellular substance is known, it consists of albumen and fibrin and has an alkaline reaction. Between other cells, as the cylindric, ciliated and non-ciliated, the intercellular substance seems to contain mucin, in the intercellular substance of cartilage we find chondrin, and in some other tissues elastic substance.

This is all that we will say at present in regard to the intercellular substance, and will now pass on again to the consideration of the cell proper.

The proliferating process is the result of the peculiar power, which cells possess, of multiplying themselves. In what manner does this take place? The processes are various and must be separately described. The most frequent process is that of cell division by fissiparous generation. In cells undergoing this process, we have first the appearance of two nucleoli, then the fluid contents of the nucleus accumulate between these nucleoli, separating them—the walls of the nucleus then approach each other between these, and two nuclei are thus formed. The cell wall then undergoes the same changes as that of the nucleus, and thus two complete cells are formed.

We have next to describe the formation of cells by endogenous multiplication. This occurs principally in those cells which possess a secondary membrane, as in cartilage, and also in embryonic cells. In cartilage-cells the same process of division occurs as above described, and we have

two or more complete cells, all enclosed by the secondary membrane. This then closes around the cells, so that each cell receives an investment of the secondary membrane. The tissue of the secondary membrane may then dissolve and the cells be thus set free.

Another mode is the endogenous cell formation independent of the nucleus. This does not often occur but must be enumerated among the others. We have first the representative cell, we then observe an aggregation of a part of the cell-contents to a particular point, around this a cell wall is then formed. The mode of formation of the nucleus is unknown. We have yet another rare variety of cell proliferation, the endogenous nuclear, formation. The nucleus first divides into two, no action going on in the cell wall, and the nucleus again becomes sub-divided into four, eight, &c., until the whole cavity of the cell may become filled. This has been particularly observed by Kolliker.

A fifth variety, the rarest of all, is the so-called physal ophorous of Mr. Virchow. About this we have not much to say. The whole cell becomes transformed into a transparent vesicle, and the nucleus is driven to the wall of the cell. In another variety of this, the cell is transformed into a larger vesicle containing a perfect cell in the centre and all around it becoming quite transparent. This can be observed in the thymus gland, but the whole process is not yet well understood.

These are the five principle processes by which cells multiply themselves. There are, however, quite a number of deviations from these. Mr. Remack, of Berlin, has first observed in lower animals that the process of the division of the nucleus does not always take place exactly as above described. There does not always appear a division in the nucleus into two parts, at first, but three nuclei are formed at once from the original one. These then again subdivide in the same manner, and we may have them increasing in

the ratio of 3, 9, 27, &c. This, as we have said, has been observed in lower animals. Kœlliker has seen something similar occurring in the corpuscles of the spleen, in which case five nuclei were formed at once. This sometimes occurs in the human body under abnormal conditions. In carcinoma of the lympathic glands Virchow has observed similar facts, there being 5, 6 or 7 muclei, all remaining connected to each other by peduncles.

In direct opposition to this view of cell-development, first advocated by Kœlliker, of Wurtzburg, but afterward doubted by him, and demonstrated to be true by Remack, who has therefore received the credit for its discovery, I say, in direct opposition to this was the doctrine advocated by Schwann, and which still claims many adherents, and, unfortunately some in our midst. This is that in Blastema cells may be formed, by one of the granules attracting others to itself, a condensation occurs at the periphery of the mass from which the wall of the nucleus is formed. Then again by aggregation and condensation cell-wall and contents are formed.

This doctrine, we now know to be false, but, however, though the origin of cell from cell only, has been demonstrated since 1844 in physiological tissues,—the doctrine of free cell-development was still adhered to by scientific minds with regard to pathology up to 1850, when it was demonstrated by Virchow that, what was true of physiological, was also true of pathological tissues. And here we may notice some of the peculiar views of Beale in regard to this subject.

He attributes all life and activity to the nucleus and nucleolus. These he calls the "germinal matter," and all else outside, cell-wall and cell contents, he denominates as "formed material" "dead matter." Under this head he also designates the intercellular substance. The germinal matter he regards as living and all the rest as "dead," (that is the term he uses.) Further than this he says everything

coming from without for the nutrition of the body, has first to pass through the nuclei of the cells before it becomes formed material. All intercellular substance has first to go through nuclei in order to become such. It is unnecessary to combat at length this absurdity. We all know this is not true, for there are active, living cells which possess no nuclei, and we have known for many years that nuclei were very important to cell life, but more for their propagation and perpetuation of the elementary parts, than for anything else- Here lies his false position. Again, it is well known that the intercellular substance of cartilage under goes a transformation in the process of formation of ossens tissue while the cartilage cells remain intact. From these facts Beale's doctrine on this subject may be safely characterized as illogical.

We have now considered how cells proliferate. In what manner do they decay? This, again, occurs by a variety of different processes: by desication—by the cell contents undergoing such changes as to become solid—by the cell-walls becoming dissolved by liquifaction. Again, foreign bodies may enter into the cells, by which they lose their character and die. This occurs physiologically in the mammary gland, the cells of this part becoming infiltrated with fat, (fatty degeneration), and when they are completely filled, the cell-wall bursts throngh pressure, and the cells are destroyed. Cells may also be destroyed by calcarious infiltration, and likewise by undergoing a pigmentary degeneration.

Having now communicated to you all the indispensible facts in regard to the cells themselves, we will next pass on to the consideration of the tissues. The classification of these is difficult, and has been attempted by several naturalists. Kölliker has divided them into two classes, simple and complex. Among the simple tissues, he places 1st, epidermic tissue; 2d, cartilagenous tissue; 3d, elastic tissue; 4th, connective tissue. Among the complex tissues he

enumerates 1st, osseus tissue; 2d, smooth muscular tissue; 3d, transversely striated muscular tissue; 4th, nervous tissue; 5th, the tissue of the blood-vascular glands; 6th, the tissue of the true glands.

Virchow has made only three divisions: 1st, cellular tissue in the modern sense of the word; 2d, all the tissues which are now-a-days generally comprehended under the name of connective tissues; 3d, the higher tissues, as the blood-vessels, nerves, muscles, &c.

Beale divides them into 1st, cellular tissue; 2d, conective tissue; 3d, contractile tissue; 4th, nervous tissue. He also comprises the 3d and 4th classes under the name of the higher tissues. This, it will be observed, is the exact classification of Virchow.

Frey, who has recently written a very excellent work on Histology, has given yet another classification, as follows:

(*a*) Tissues composed of simple cells with fluid intercellular substance—1, Blood; 2, Lymph and Chyle.

(*b*) Tissues composed of simple cells, with scanty, firm, homogeneous, inter-cellular substance—3, Epithelium; 4, Nail.

(*c*) Tissues composed of simple cells, with abundant firm, homogeneous substance—5, Cartilage.

(*d*) Tissues composed of cells which are transformed and which tend to coalesce, lying in a partly homogeneous, partly fibrillated, firm inter-cellular substance—6, Mucous tissue; 7, Fatty tissue; 8, Connective tissue; 9, Osseus tissue; 10, Dentine tissue.

(*e*) Tissues composed of transformed, but not coalescing cells, with a homogeneous, scanty, firm inter-cellular substance—11, Enamel; 12, Lens; 13, Muscle.

(*f*) Complex tissues—14, Nervous tissue; 15, Glandular tissue; 16, Vessels; 17, Hair.

Now among all these, it is extremely difficult to make the proper selection. Though Virchow's classification is the simplest, and in a general point of view, entirely philosophic,

yet I prefer, upon the whole, for convenience sake, that of Frey, with but three alterations. These are, 1st, that the first division of blood and lymph tissue, should be classed with the vascular tissue, for the *origin* of the tissues should be made the basis of their classification; 2d, the elementary parts of the lens should be classed with the epithelium; 3d, the hair should be classed with the horny tissue.

We will speak first of those tissues which are made up of simple cells and which have but little basis—, or intercellular substance.

The epithelium is a highly important tissue, which appears either in thick or thin layers. It covers the skin, lines the mucous membranes, the cavities of the synovial membranes, the heart, blood-vessels, lymphatic system, &c. The size of the cells vary very much, sometimes being very large and again very small. They are very large in the mouth and bladder. On the sole of the foot they assume the appearance of scales, the lamina varying from one to one-half line in thickness. They line the whole inintestinal tract by a single layer. These epithelial cells show several different forms. 1st, Spherically vessicular; 2d, Pavement epithelium; 3d, Cylindric; 4th, Ciliated; 5th, Pigmentary, and 6th, Caudate.

The first variety of these being of extremely rare occurrence, we will first consider the pavement epithelium.

These cells have a very peculiar formation in the plexus choroidei of the brain. Here they appear, looking from above downwards, like the ordinary pavement epithelium, but from below they present offshoots, approaching in appearance the legs of a foot-stool. This only occurs in the plexus choroidei in the ventricles of the brain. The cells appear either in single layers, or are laminated, the laminæ varying much in number and thickness.

The pavement epithelium is highly laminated in the conjunctiva, the mucous membrane of the nose, pharynx, mouth, urethra and bladder, and in the female organs of generation.

It is thicker in the cutis, where it consits of two distinct layers, the epidermis and the rete mucosum.

In the pavement epithelium, on various parts of the body, as the labia minora, anus, areola of the nipples, &c., we observe a pigmentary substance. This is due to the peculiar pigment granules deposited in the cells of these parts,

The epidermis differs from common pavement epithelium in one respect—, the absence of nuclei. This is generally true, except in the embryo. There are, however, certain parts of the body of the adult—where the skin is extremely thin and delicate—on which these nuclei appear.

A peculiar form of the pavement epithelium is shown in the polyedric pigmentary cells composing, for instance, the uvea of the eye.

The size of the pavement epithelial cells varies not only with regard to the different organs, which are lined by them, but likewise with regard to their respective age. We uniformly find in thickly laminated layers the undermost youngest layers to consist of, comparatively speaking, smaller cells, while those nearer to the surface are by far larger.

FOREIGN NEWS.

On the Various Risks of Operations.—By James Paget, F. R. S., (delivered at St. Bartholomew's Hospital).

Lect. I. Part II.—The foregoing, so far as I have been able to learn them, are the various risks of patients with admitted morbid constitutions. The importance of being able to decide the questions arising in such cases must be evident to you. And questions of equal importance, and yet of greater difficulty, arise in the cases of many who may not be called diseased, but who certainly are not in any just sense of the word healthy, such as the plethoric, the over-fat, the intemperate, the over-fed, the feeble, the degenerate, the cold-blooded. What can be safely said about these, and of the dangers they severally incur when we wound them? I will try to tell what I believe.

Plethora, pure and simple, is not a bad condition for operations. So far as I have seen, people that have been full-blooded, ruddy, warm, round-limbed, tight-skinned, with strong hearts, and, as we suppose, a rather excess of blood, have done well. But such people must be carefully managed; not fed too well: not kept too long in bed; not allowed to retain their refuse; and mere bigness must not be taken for plethora.

For the over-fat are certainly a bad class, especially when their fatness is not hereditary, but may be referred in any degree to their over-eating, soaking, indolence, and defective excretions. The worst of this class are such as have soft, loose, flabby, and yellow fat; and I think you may know them by their bellies being pendulous and more prominent than even their thick, subcutaneous fat accounts for; for this shape tells of thick omental fat; and, I suppose, of defective portal circulation. I know no operations in which I more nearly despair of doing good than in those for umbilical hernia or for compound fractures in people that are over-fat after this fashion. Nothing short of the clearest evidence of necessity or of great probable good, should lead you to advise cutting operations in people of this kind. Do lithotrity for them rather than lithotomy; incline against amputations for even bad compound fractures; and, wherever you can—as, for instance, cutaneous cysts, hæmorrhoids, and the smaller examples of scirrhous mammary cancers—use caustics rather than the knife or ligature.

All these warnings must be doubled for the intemperate. One does, indeed, sometimes meet with habitual drunkards who pass safely through the perils of great operations; but these are rare exceptions to the rule, according to which one may reckon that the risks of all operations increase with the increasing degrees of habitual intemperance. I think you will find that a habit of slight intemperance is much worse than occasional great excesses; that regular soaking is worse than irregular carousing; probably because of the steady impairment of the blood and of all the textures to which the soaking leads. Of course you will keep your hands off notorious drunkards, unless you are driven by the stress of a strangulated hernia, or a stopped windpipe, or something leaving you as little choice as these do. But you must be on your guard to detect a good deal of drunkenness of the soaking kind which is not notorious and not confessed. Be rather afraid of operating on those, of whatever class,

who think they need stimulants before they work; who cannot dine till after wine or bitters; who always have sherry on the sideboard; or are always sipping brandy-and-water; or are rather proud that, because they can eat so little, they must often take some wine. Many people who pass for highly respectable, and who mean no harm, are thus daily damaging their health, and making themselves unfit to bear any of the storms of life.

On all such as these, operations are more than doubly hazardous. Of course you may hear of wondrous escapes from dangers, and, on the credit of a few exceptions, silly proverbs are made about the impunity of drunkards; but the general rule is certain. Every risk of an operation is increased in the habitually intemperate; they are, above the average, liable to every one of all the sources of danger and of death.

I have had no sufficient experience among teetotalers to enable me to speak with any certainty of their capacity for bearing operations. I cannot doubt that a patient trained all his life, to habits of rigid temperance would bear injuries of all kinds better than the average of men; but people of this sort are not commonly those with whom you have to do under the name of teetotalers. These are, much more commonly, such as have been intemperate, or, to say the least, imprudent, in their manner of living, and have then wholly changed their habits, and lived without any stimulants whatever. Of such people I have no good opinion when they come to be the subjects of surgery; for they seem to retain the bad liabilities of the intemperate long after they have given up their bad habits. I would not adopt the opinion that I have heard some express, that teetotalers are worse patients than drunkards; but I should always expect that a very long period of reformation would be required to free a man from the damages he has sustained by intemperance.

Over-eating is not commonly supposed to lead to any such risks of life as over-drinking does; yet I believe that you will find, in operative surgery, that among the habits that increase the risks of life, this may stand not far off drunkenness, especially if the over-eating is of meat and other nitrogenous foods. I am led to believe this from several cases that I have observed, and I think that there are large evidences of it. You know that the general results of operations in provincial hospitals tell of a smaller mortality than in the hospitals of London and the largest towns. The difference is commonly ascribed to differences in the purity of the air, and other advantages of that kind in the comparatively rural districts. I believe that much more of it is due to the differences of habits in the several classes of patients. The differences are many; but one of the chief of them is that the poor in the agricultural districts eat far less meat than those in large towns do, and are, by comparison, less fed, though probably not worse fed; and you may frequently observe that patients who come to us from agricultural districts bear operations in all respects better than Londoners who are submitted to the same proceedings. Of course many things concur to make the differences of constitution between a town and a country population; but I am satisfied that among these things a very potent influence is exercised by the difference of diet. And the differences that we may thus see are strongly illustrated by what one hears of the results of operations upon the natives of India and other Eastern countries, whose diet is almost exclusively vegetable. Almost any amount of injury may be inflicted on them, and not be followed by the destructive mischiefs which occur in Europeans under the same circumstances. They are defective, it is said, in healing power; but they recover with comparative certainty, however slowly, from operations of the greatest magnitude. A common expression about them is, "You can't kill them."

There are many patients to whom you cannot assign a morbid constitution, but who are feeble in all their

processes. No organ, it may be, works wrongly; but no organ works with due power. Many children are in this condition, and some adults, whose condition has been admirably portrayed by Dr. Chambers in his book on Italy. They are not always bad subjects for operation. Repair will probably take place in them as feebly as any other vital process; but I believe they are not particularly liable to the diseases after operations from which the greatest risks arise. Children of this class you should be cautious of operating upon for hare-lip or other such defects as do not urgently require interference; and in adults, if you can defer operations to some period of better health, you should do so; but all this for fear of local failure rather than of incurring any unusual risk of life. For in the management of these, as of all cases, you will find that the chief vital risks of operations are not through mere defects of power, but through diseases. The measure of danger is not in the proportion between more or less of vital force, and more or less of exhaustion, but in the amount of liability to real diseases of the blood and tissues.

You often hear me speak of patients as "cold-blooded." I do not know that the whole of their blood is less warm than that of ordinary persons, but some of it is, for their hands and feet are seldom or never naturally warm; and some of them feel, when you touch them, as cold as reptiles in the same climate—their hands and feet feel as moist and damp as toads and frogs. The circulation in all these cold parts is of course very slow, and probably it has not a due velocity in any of their textures; for, wherever you can see vascular parts in them, they are of duller tint than they should be, dusky, and with a purple hue rather than a rosy one; and with these signs you find small pulses, and general indications of slowness in all vital processes. They digest slowly, and are very prone to constipation; and the women amongst them menstruate disorderly, and are liable to headaches and backaches, and a variety of nervous symptoms. People of this kind are so numerous that you will do well to look out for them among your cases, and to treat them specially with iron, with particular regard to this cold-bloodedness and slowness of life. They are not bad subjects for operations; rather, I should reckon them amongst the good ones; for they have always seemed to me singularly little liable to fall into the troubles of erysipelas, or pyæmia, or any other disorders of the blood: and the healing of their wounds is apt to be interrupted. Observe their defects; minister to them with warmth and good food, but not high stimulants or great eating, and they will do as well as any you will have.

And, to finish this account of the influence of diseased, or disorderly constitutions on the results of operations, let me tell you of the people that are commonly called "nervous." I do not refer to those with manifest disease in any part of their nervous system, but to those that are exceedingly sensitive, mobile, and excitable, whether in their sensitive or motor organs—who are very emotional, and with their whole cerebro-spinal nervous system altogether too alert. You will find them and their friends always apprehensive of the results of operations; they will tell you that they are so nervous they can bear no shock; and they look with the greatest apprehension upon the inflictions of any injury. All this is fallacious. You may be surprised at observing how very little influence upon their organic processes this excessive vivacity of their cerebro-spinal system exercises. Time after time I have found patients who have complained of agonies in their wounds, and I do not doubt have felt them, but whose pulses have been unmoved. They have had enormous pain, but no fever, no single sign of disturbance of their general nutrition; they have had spasmodic movements of their limbs, tremblings, and rigors, but no mischief has followed. Besides, the same mobility of mind which makes

these patients very fearful before an operation makes them hopeful directly after it; and amongst all the people that can in any sense be called invalids, I know none who more generally pass through the consequences of operations with impunity than do those who are commonly called nervous, and whose nervousness consists, if I may use the expression, in too great a vivacity of their whole cerebro-spinal system.

Sometimes you may be forced to operate during the continuance of an acute disease; and although the circumstances of the case may give you little choice as to whether you should operate or not, it is well to be aware of the degree in which the acute disease may influence the result of your proceedings.

Patients with ague bear operations as well as others of the same class; but, in the course of their recovery, they may alarm you by having one or more ague-fits, exactly resembling those that precede pyæmia. And more than this: if a patient has ever had ague, and, even many years afterwards, you perform an operation on him, ague may seem to be renewed in him at some short time after the shock, or loss of blood, or whatever other damage he may have sustained. I have so often noticed this, that whenever I hear of severe rigors following on any operation, I ask for a previous history of ague; and I have sometimes found that the patient has almost forgotten it in the long lapse of time since he suffered from it.

The question of amputation often arises when the patient is suffering with erysipelas, or with that spreading inflamation of the cellular tissue which is closely akin to erysipelas. I have often said to you that I look upon a secondary amputation as a confession of either a mistake or a disappointment. Either a primary amputation ought to have been done, and by mistake it was left undone; or if for any apparently sufficient reason it was not done, the necessity of doing the secondary amputation implies the disappointment of just hopes. I have spoken with this disparagement of secondary amputations because the necessity for them is so likely to come when the probability of success is reduced by the operation being performed while the patient is in acute disease. I cannot tell you the numerical increase of risk; but I believe that the mortality after amputations during erysipelas, or spreading cellular inflammation, would be found very much greater than that of primary amputations, or of secondary amputations done for merely wasting suppuration or irreparable local damage. I scarcely know any set of cases in which I have operated with less hope than in those of compound fracture, or similar injuries, in which the question is raised whether a patient, who seems dying with acute disease, may have what is called a chance of his life by amputation. In the large majority of such cases the chance by operation seems to be less than that of keeping the patient alive by the ordinary treatment of erysipelas, or whatever other acute disease he may be suffering with.

What are the chances of recovery from operations done during pyæmia? I think I can answer safely, that in acute pyæmia in which the patient has rigors once or more in a few days, and profuse sweatings; with very rapid pulse and breathing, and with delirium, and rapid wasting, or with dry tongue and yellowness of skin, or any considerable number of these symptoms, the probability of good is so small, and of harm so great, that you should refuse to operate. But in chronic pyæmia, when the disease requiring operation adds largely to the exhaustion from which the patient is suffering, the removal of the disease may be very proper. Suppose, for example, a patient with a crushed foot or a crushed hand, in whom signs of acute pyæmia have recently appeared. Whatever be the state of the injured part, I would not add the damage of an amputation to the burden that the patient already has to bear. But if the pyæmia have

become chronic, attended with only wasting and sweating, and the formation of abscesses here and there, and if the injured part be manifestly useless, and a source of irritation or of exhaustion, the mere existence of pyæmia in the chronic form would not turn me from the operation required by the part.

The occasions for operating in any other than these acute diseases are not many, but in diphtheria or croup you may have to perform tracheotomy, and during peritonitis a hernia may require operation. These are all cases of necessity, and their results are not materially affected by the general acuteness of the disease. If their local good is accomplished, the healing of the wound and the recovery of the patient may occur as in any ordinary case, unless, indeed (which I have never seen), a wound after tracheotomy should itself become diphtheritic. —*Lancet, July* 13, 1867.

CHLORINE DISINFECTION. — A communication on "Disinfection by Euchlorine in Continuous and Regulated Flow," of a very practical character, was recently made to the Manchester Medical Society by Mr. Stone, the professor of chemistry at the Manchester School of Medicine. In 1866, Mr. Stone was called upon to advise the justices of the Hundred of Salford as to the best means to be taken with the view of preventing the spread of cattle plague, and he drew up a report recommending that a uniform and systematic process of disinfection by chlorine be undertaken by a portion of the police constabulary (119 men); and this was carried into effect, each officer being provided with a suitable kit, containing every requisite for the generation of the gas, and a dress enveloping their ordinary clothes. This arrangement operated very beneficially. The chlorine was generated by dropping a few grains of chlorate of potash from time to time into a wine-glass two-thirds full of muriatic acid. This was done twice a day in all shippens. The clothes of the persons employed in disinfecting were expeditiously chlorined in this way: a small bandbox was made, perforated with holes and lined with sponge; into this box pumice-stone wetted with strong hydrochloric acid was put, and then a pinch or two of powdered chlorate of potash added; this box, together with the clothes, were put into an oil-skin bag together for a while, and constituted on a small scale, a "portable quarantine hospital."

Incited by the success of his chlorine system, Mr. Stone has attempted to adapt it to medical wants and requirements, and has made an apparatus which will continuously and with graduated flow supply chlorine in such a way as to be available for use in the sick chamber or the wards of an hospital. As a substitute for disinfection by chloride of lime, it is infinitely preferable for obvious reasons. Hitherto the physician has possessed no mechanism by which he could regulate the amount of chlorine generated, but Mr. Stone's arrangement is apparently free from this objection, and its utility should be tested by the profession.—*Lancet, Aug.* 31, 1867.

FUNGUS ORIGIN OF CHOLERA.—Prof. Hallier, of Jena, claims to have discovered, in the forms of fungous growth of definite and special characters, the true contagium of cholera. The occurrence of torula-like cells in cholera, and indeed in many different diseases, is no novelty; the interest attaching to Hallier's statements consists in the fact that his cholera fungus is altogether special in origin, in nature, and in behavior, whilst concomitant circumstances lend great probability to his main assertions.

Hallier's observations were made in 1866-7 at Berlin and Eberfeld, on cholera vomit and stools. The peculiar vegetable elements in the stools consisted of fine filaments, which were found at the upper part of the fluid, and of cyst-like bodies which were highly refractive, of yellowish or brownish color, and which sank in the bottom. The cyst-like bodies

contain highly refracting colored spores, which after a time become free by the rupture of the cell-wall. The spores then divide and subdivide, giving rise to collections of little heaps of small cells, and Hallier calls these "colonies" of micrococcus. The smallest cells attach themselves to particles of animal matter, and seem by their growth to lead to their destruction. From the same cells torula forms develop and finally pass into the oidial stage. In cultivating the fungus in sugar Hallier obtained *mucor* and *penicillium*-like growths; on starch paste the result was much the same, and on muscular tissue the cyst form was more marked; the fungus grown on paste which had been boiled with tartrate of ammonia led to the formation of the cysts in their most perfect condition, and the counterpart of the *Urocystis occulta* which infests cereals was produced. The latter form (urocystis) Hallier has never been able to produce artificially from oidial forms of fungus, but only from cholera stools. These facts have led Hallier to believe that this particular form is peculiar to cholera evacuations, and that it is the active agent in the evolution of the disease. From the fact that it requires a high temperature for its development, he believes moreover that the urocystis is not and cannot be acclimatized in Europe, but that it travels in the intestines of cholera patients from India, and finds in summer the necessary temperature for its increase. The fact that it requires the presence of nitrogenized matter for its growth is another interesting point in reference to the well known influence of water and air poisoned by excrementitious matter in aiding the outbreak of cholera.

The urocystis is a form of blight common on rice; and Hallier believes that it finds its way to the human intestines from the diseased rice plant. This view of the matter derives interest from the view propounded by Dr. Tytler many years since—that the use of diseased "ergoted" rice induced cholera. Hallier has attempted to experimentalize on this point. He planted rice under conditions similar to those which obtain in India, and watered them with cholera stools. The rootlets of the plants were soon found to be perforated by fungus threads, and the cells of intercellular spaces became rapidly invaded by "micrococcus" elements, whilst the tissues themselves began to atrophize; but the attempt to obtain the cyst form was unsuccessful. Still the stage anteceding its formation was distinctly reached. The field of experiment open, is in truth a vast and promising one; and it is to be hoped that some thoroughly scientific work will be at once undertaken in this matter. We must admit, then, that in the intestinal contents in cholera has been found a special form of fungus analogous to that which produces "blight" in rice; and that probably the two may be related in regard to source.

Now, what influence has this urocystis, or could it have in the generation of cholera? Microscopic fungi prevail contemporaneously with epidemic disease. That we well know. The cholera urocystis seems clearly, in its growth, to have the power of disintegrating the intestinal epithelial tissues, and indeed all nitrogenized matters, which constitute its pabulum. Epithelial denudation is believed by many to be the starting point of cholera. But it has yet to be shown that the introduction of the urocystis into the intestines of a subject surrounded by the best hygiene would give rise to cholera. The results of modern research tend to show that for such a result to take place—supposing the fungus to take any active part—the intestines ought to contain a state of the fluids different from health, and suited specially to the development of the urocystis. The growth of a fungus in any fluid alters the character of that fluid, and it may be that the generation of some subtle compound is favored by the action of the "cholera fungus" upon fluid, and that this is the immediate cause of cholera, whilst the fungus itself may

or may not have some additional effect locally on the tissues.—*Lancet, Aug.* 31, 1867.

CHOLERA CONFERENCE AT WEIMAR.—A Conference of sixty most eminent physicians was held at Weimar on the 28th and 29th of April last. At this meeting it was agreed that the especial points to be, for the future, investigated, and the particular subjects in regard to which facts should be collected, are.

1. Investigations respecting the lower organisms in relation to cholera. 2. The influence of water, whether used for drinking, household or other purposes, in propagating the disease. 3. The study of the soil and springs. 4. The searching after facts which may show whether cholera can be conveyed by contact, by articles of dress, &c. 5. The effects of the prevalence of diarrhœa. 6. On the spread of cholera by ships. 7. On the possible contamination by goods.

It may be added that Drs. Klob (Vienna) and Thome (Cologne) have discovered in the dejections and the intestinal mucus of patients who had died of cholera a peculiar fungus, which they minutely describe. Further researches are, of course, indispensable on this head.—*Lancet, June* 4, 1867.

EDITORIAL.

The meeting of the ST. LOUIS MEDICAL SOCIETY of the 26th of October, was pregnant with good. On a motion of Dr. Hammer, Dr. M. M. PALLEN being in the Chair, it was resolved unanimously that some efforts towords legislative enactments for the protection of the people against quacks and humbugs, be attempted during the approaching session of the Missouri State Legislature.

We see at a glance the incalculable benefits to accrue, should such a bill be passed. It will necessitate upon the part of practitioners of Medicine, sufficient knowledge, as will at least prevent their killing. We are thus explicit because medicine is frequently practised by the most ignorant and impudent, and the modest, worthy physician is pushed out of the way by charlatans. To obtain such reforms as would radically rectify the evil is hardly possible, but legislation towards such protection as the lives and pockets of the public at large demand, is feasible and practicable. How this is to be

accomplished, will be a matter of consultation upon the part of the profession of the entire State, and for this result the forthcoming re-organization of the MISSOURI STATE MEDICAL ASSOCIATION, was considered to be a matter of vital importance.

It is a lamentable fact that any one may practice medicine and surgery in the State of Missouri, without the ordinary qualifications, such as are demanded in all civilized countries. It is true that the spirit of our laws might be twisted into such shapes, as to be interpreted into a deduction that the rights of individuals would be trampled upon by restraining enactments and qualifying measures. We must learn that to be honored and honorable, we should be governed. Liberty is not license.. The newspapers throughout the country, notwithstanding their denials, do publish day after day, the advertisements of every charlatan who will pay for them, in which audacious and presumptuous promises of speedy and certain cure are heralded, and for which the poor patient pays the most extortionate prices; and, there is no physician or layman of sense, but who sees, that instead of amelioration, the most frequent result is a loss to the patient of time, money and health. We do not argue that all regular physicians would cure all such cases. Far from it, we are unfortunasely impotent to do aught in many of them, but we do urge that the honest, conscientious physicians, and there are legions of them, would at least not hurry their patients to the grave, or extract the last dollar from a frequently impecunious pocket. In all of the professions we must be guided by the lights of older communities. In England, France, Germany and Switzerland, there are most strenuous efforts made by the "Government" to suppress charlatinism, and, notwithstanding the popular belief, there are relatively fewer quacks ten to one, in those countries, than we have in the United States. Our medical schools are in a measure to blame for this condition of affairs, because they are not rigorous enough in graduating the candidates for the degree of Doctor of Medicine.

We must reform all this, and need another Hamlet to instruct the players, and in lieu of another Prince of Denmark to get the rottenness from out the kingdom, we must cut the Gordian knot by special legislation. The community will sustain us if we have such a bill framed, by which any man or woman may practice medicine and surgery who is qualified, and who can pass an examination before a Board recommended by the entire profession, through the State Medical Association, and who shall be appointed for their known ability and integrity. Of course no retrospective or *ex-post facto* law can be devised, (we only wish such could be done in this matter,) yet, while we cannot crush ignorance and presumption, we can prevent its farther dissemination.

The task before us is a herculean one, and unless the matter is carefully weighed and thoughtfully deliberated, the shirt of Nessus will be thrust upon us, and harm, and possibly destruction, will be the result. Let every Medical man think profoundly upon this subject, and come up and present his views in the Convention which is to meet on the second Tuesday of December next in the city of St. Louis. We owe it to our dignity to throw a protective mantle over our rights, we owe it to our patients to guard them from imposition, and we owe it to humanity to shield it against the robberies of knaves and the mistakes of fools.

Let all our aims be for the common good, and should we fail, we will at least have the satisfaction of knowing that honest endeavors were not wanting in the consummation so devoutly to be wished for.

BIBLIOGRAPHICAL NOTICES.

We are indebted to HENRY C. LEA, the enterprising Philadelphia publisher, for the following works. They would have been noticed in our last issue, but came too late:

Essentials of the Principles and Practice of Medicine. A handy book for students and practitioners. By HENRY HARTSHORNE, M. D., Professor of Hygiene, in the University

of Pennsylvania, &c., &c. As the author says, "it is an unambitious effort to make useful the experience of twenty years of private and hospital medical practice, with its attendant study and reflection," and like all efforts of true worth is clothed in modesty. We canno' fully endorse Prof. Hartshorne's pathology, particularly as we are disposed to incline to Virchow's cellular doctrines, yet we are compelled to accord great praise for this concise and succinct treatise. Perception and learning are manifest throughout every page, and the Introduction, on the Systems of Medicine, is elegant in style, clear in expression and replete with knowledge. If all of our book writers follow Prof. Harthorne's example, we will have more useful works, and fewer trashy compilations.

Injuries of the Eye, Orbit, and Eyelids: their immediate and remote effects. By GEORGE LAWSON, F. R. C. S. Eng., &c., &c. We are much pleased with this work, and from the high reputation of its author, were favorably inclined to it. Its perusal will amply repay the student or surgeon.

The great experience gleaned at the Ophthalmic and Middlesex Hospitals in London, is well digested and arranged. Mr. Lawson has grouped together the most important points relating to injuries of the eye, orbit and eyelids, and has presented a record of characteristic cases, which cannot fail to interest and instruct the reader.

The drawings are most excellent, as is the paper and printing. It is well worthy a place in the library of any medical man.

A Treatise on Human Physiology. By J. C. DALTON, M. D., Professor of Physiology in the College of Physicians and Surgeons, New York, &c. Third edition, revised, etc. The unanimous laudatory notices of this production of Prof. Dalton's preclude an extended notice on our part. We simply state that it is a most excellent treatise, fully up to the times and reflects credit upon science in the United States. The articles on generation and embryology

are as clear as the limpid waters of Tempe, and as easily fathomed. The experimental researches which he has induced, indicate ingenuity of method and originality of thought. There are some points, however, on muscular action and its sources, which are not original, and whose authorship is ignored. Prof. Dalton can well afford in the plenitude of his reputation to accord to an eminent St. Louis physiologist, priority on this subject, and we hope to see him do it. On the whole, we like Prof. Dalton's work "exceedingly much."

Synopsis of the Course of Lectures on Materia Medica and Pharmacy, Delivered in the University of Pennsylvania; by JOSEPH CARSON, M.D., Prof. of Materia Medica and Pharmacy. Fourth and revised edition.

For all of the above works, we return our thanks, and, state that our friends, the publishers, may always rely upon a fair and candid critique. If a book is not good, we will emphatically so pronounce it.

PROF. EDWARD WARREN, of the Washington Medical College, Baltimore, Md., has placed us under obligations for his "*Introductory.*" Like all of Prof. Warren's productions, this is spicy, racy and good. We only regret that a few of our own medical men of the West could not peruse it. The wholesome distinctions drawn between the open and the secret quack, would be of great service in enlightening the St. Louis medical mind on certain questions pertaining to ethics, and which still are mooted points.

TO THE MEDICAL PROFESSION OF THE STATE OF MISSOURI.

At a meeting of the St. Louis Medical Society, held on the 26th of October, the undersigned were appointed to invite the physicians of the State of Missouri, to meet in convention, at 12 M., on the second Tuesday of December, 1867, for the re-organizing of the MISSOURI STATE MEDICAL ASSOCIATION. Local and County Medical Societies will please forward the names of all delegates. Where no Societies exist, all physicians who are graduates of a regular school in good standing, are cordially invited.

MONTROSE A. PALLEN, M. D. JAMES R. WASHINGTON, M. D.
ED. MONTGOMERY, M. D. J. M. YOUNGBLOOD, M. D.
R. S. ANDERSON, M. D. G. F. DUDLEY, M. D.
JNO. J. McDOWELL, M. D.

EXCHANGES RECEIVED.

American Journal of Med. Sciences.
American Journal of Dental Science.
Atlanta Med. and Surg. Journal.
Boston Med. and Surg. Journal.
Braithewaite's Retrospect.
Buffalo Med. and Surg. Journal.
Chicago Medical Examiner
Chicago Medical Journal.
Chemical News, N. Y.
Cincinnati Lancet and Observer.
Dental Cosmos.
Leavenworth Medical Herald.
Medical News and Library, Phila.
Med. and Surg. Reporter, Phila.
Medical Gazette, New York.
Nashville Jour. of Med. and Surg'y
Southern Jour. of Med. Sciences, N.O.
St. Louis Med. and Surg. Journal.
St. Louis Medical Reporter.
Western Journal of Medicine.
L' Evenement Medical, Paris, France
Klinische Monatsblatter fur Augenheilkunde, Herausgegeben von D. W. Zehender, Erlangen.

EXCHANGES SENT.

Druggists Circular & Chemical Gaz.
Galveston Medical Journal.
Journal of Applied Chemistry.
London Lancet, (reprint) N. Y.
New York Medical Record.
New Orleans Medical Journal.
New York Medical Journal.
Pacific Medical and Surgical Jour.
Southern Medical & Surgical Jour.
Richmond Medical Journal.
Detroit Review.
Journal of Materia Medica.
Quarterly Journal of Psychological Journal.
Canada Medical Journal.
The Medical Journals of Great Britain, France and Germany.

MISCELLANEOUS.

VESICO-VAGINAL FISTULA: THE PREPARATORY TREATMENT AND MODE OF OPERATION. By THOMAS ADDIS EMMET, M. D., Surgeon to the New York State Woman's Hospital, New York.

Since the application of the metallic suture to the class of injuries under consideration, and its subsequent general use in obstetrical surgery, scarcely any other branch of our profession has made more progress, with a greater promise for the future. Posterity, regardless of counter claims of priority, will ever intimately associate the name of J. Marion Sims with the use of the metallic suture. It is not my

purpose, however, to review at length the labours of Dr. Sims, or the subsequent claims of others who have contributed at home and abroad to the common stock, for they are as "household words" to the operator. But as an explorer in a field almost uniformly unsuccessful, as a demonstrator of the true principles applicable, and as the originator of the necessary instruments which have not been improved, whereby success is now the rule, he can rest his claims with the future. Through his teaching, in a development of the surgical field peculiar to woman, the progressive results have been such as seldom follow the efforts of a single individual, and the subsequent success of others can but confirm his claims.

In this country there are now but few surgeons who have not been successful, for the operation is one of the most certain of success in surgery, provided that the edges of the fistula are properly denuded and secured without undue tension by the metallic suture. This fact is demonstrated by the records of the Woman's Hospital, as, for some years past, with the increased experience of the profession in the mode of operating, but few cases have been admitted to the institution in which the loss of tissue had been so slight that the edges could be approximated without the aid of plastic surgery. It is my purpose to present in detail, from over two hundred successful cases, a selection in illustration of many points of difficulty which would be rarely met with in private practice, but which are of frequent occurrence in so large a school. With the exception of a few cases operated on while I was the assistant surgeon, all have occurred during the past five years in my service as surgeon to the hospital, or in private practice.

As the result of an experience based on some two hundred and fifty cases in my own practice alone, I may state as a principle that scarcely any case is incurable. The operator, however, like an engineer, must fully appreciate the peculiarities of the situation, and make each point available in his defence; and his success will be in proportion to his ingenuity in turning to the best account the peculiar features of each case. Unfortunately, however, in many difficult cases, the patient is either in indigent circumstances or unable to spare the necessary time from her home duties, and, withal, during the many progressive operations so often requisite, the faith of the sufferer, as well as the patience of the operator must often be severely taxed. The soft parts are susceptible of such great modification that it is often impossible for the surgeon to fully anticipate from the first what may be the result of his labours. It is only step

by step, as the parts are relieved of tension, that they become moulded to their new condition. A full conception of what may be accomplished can only be formed with the gradual disappearance of the cicatricial tissue, and after a more healthy condition has been brought about by proper treatment. I have had but five cases which I have been obliged to abandon as wholly incurable, not so much in consequence of the actual extent of the injury sustained, as from the excessive obesity which rendered it impossible to bring the parts into view, and from the fact that, through great irritability of the nervous system, they were unable to bear a long operation on the knees, in the position necessary for their case. About fifty patients who have been under treatment in the hospital have returned home for various causes at different stages of their treatment. Many have done so after months of careful preparatory treatment, without waiting for a final operation, being satisfied with their improved condition. Others have done so with my advice, either to recuperate or to await the efforts of nature in bringing about some desirable change in the parts previous to another operation, and a small number for disorderly conduct. These cases are frequently relieved afterwards by an operation at home, and have been placed on record as cases which were discharged incurable from the Woman's Hospital, while the operator did not realize how much had been accomplished for him, and that in many cases the mere closing of the fistula was not difficult after the parts had already been properly prepared.

A vesico-vaginal fistula following parturition may be defined as an opening from sloughing in the bladder, resulting from delay in delivery after impaction has taken place. The exceptions to this rule are those caused by rapid labour, lacerating the neck of the uterus, and extending beyond so as to involve the base, together with lacerations at the neck of the bladder, which sometimes occur on delivery by forceps. The accepted teaching to wait any given length of time after the occurrence of impaction, with the hope that nature may yet accomplish the delivery unaided, is, as a rule, attended with great danger. After a careful review of all the recorded cases admitted to the Woman's Hospital since its foundation (some twelve years ago), I cannot satisfy myself that more than three cases out of the whole number should be regarded as having resulted from instrumental delivery. These were cases of malpractice, and of no value in a statistical point of view. An escape of urine frequently follows immediately after delivery by forceps, but only as a result of the slough, which had already taken

place, and at the time partially detached. In accepting the teaching based on so large a record, I believe tha', after impaction has occurred, a novice would be likely to do less damage to the soft parts in applying the forceps or using the perforator, if familiar with the mechanism of labour, than in leaving the case to nature, as is frequently done. I have known the greater part of the base of the bladder lost by subsequent sloughing after an impaction of the head for only two hours. And, again, we have cases on record which had been left to nature undelivered from a week to ten days, and one over a week after the head had passed the vulva. It is evident, therefore, that the average duration of labour cannot be taken as a guide, for the injury had actually resulted long before delivery, although the slough may not have been separated for a week or two afterward, as is frequently the case. The only deduction that we can draw from experience is, that the lower the head is left in the pelvis the greater is the danger, and that less than two hours even is sufficient to cause extensive loss of tissue; also, that the amount of injury is by no means in proportion to the length of labour, and that the only safety consists in as rapid delivery as the circumstances of the case will admit.

After treating of the proper means of preparing the patient, the necessary instruments, and the method of operating which has proved most successful in my hands, together with the after-treatment, I shall present a series of cases under the following classifications: 1st. Fistulæ from laceration of the cervix, with or without sloughing, and involving a portion of the base of the bladder; 2d. From the sloughing of some portions or loss of the whole base; 3d. Lacerations across the neck of bladder or urethra; 4th. Loss of the entire base of the bladder, the cervix uteri and the urethra.

Unless the greatest care has been given to cleanliness, the sufferer, in a few weeks after receiving the injury, becomes a most loathsome object. From the irritation of the urine, the external organs of generation become excoriated and œdematous, with the same condition extending over the buttocks and down the thighs. The labiæ are frequently the seat of deep ulcerations, and occasionally of abscesses. The mucous membrane of the vagina is in part lost, and the abraded surface rapidly becomes covered at every point with a sabulous or offensive phosphatic deposit from the urine. If the loss of tissue has been extensive, the inverted posterior wall of the bladder protrudes in a semi-strangulated condition, more or less incrusted with the same deposit, and bleeding readily. This deposit will frequently accumulate to

such an extent in the vagina that the sufferer becomes unable to walk or even to stand upright without the greatest agony.

This deposit must be carefully removed, so far as possible, by means of a soft sponge, and the raw surface brushed over with a weak solution of nitrate of silver. If, at any point, it cannot be at first removed without causing too much bleeding, the deposit itself must be treated in the same manner, or coated with the solid stick. Warm Sitz baths add greatly to the comfort of the sufferer. The vagina must be washed out several times a day with a large quantity of tepid water. After bathing, it were best for the patient to protect herself by freely anointing the outlet of the vagina, and the neighboring parts with any simple ointment; the ceratum calaminæ, however, being the best. She must be instructed to wash her napkins thoroughly when saturated with urine, and not simply to dry them for after use. Time and the increased comfort of the patient are gained by judicious attention to such details. About every fifth day, the excoriated surfaces yet unhealed should be protected with the solution of nitrate of silver; and it is necessary frequently to pursue the same general course for many weeks, before the parts can be brought into a perfectly healthy condition. This point is not reached until not only the vaginal walls, but also the hypertrophied and indurated edges of the fistula have attained a natural color and density. This is the secret of success; but the necessity is rarely appreciated; without it, the most skilfully performed operation is almost certain to fail.

When the proper condition has been brought about, the surgeon may then be able to decide upon some definite plan of procedure for the closing of the fistula. The edges should be seized at opposite points with a tenaculum held in each hand, and the degree of tension judged by an approximation in different directions. If, at any point, the edges do not come readily together, the finger can detect the seat of resistance, while the parts are kept on the stretch by a tenaculum in the other hand. When the bands are comparatively slight, and superficial, or brought well up by traction, it is generally sufficient to divide them with scissors at the time of the operation for closure. But, on the contrary, when the tension is due to more extensive sloughing, or when the cul-de-sac has been destroyed, the parts can seldom be properly freed without more or less hemorrhage as a complication, and it will be necessary to make one or more preparatory operations. Placing the patient on the back, with two fingers of the left hand introduced into the rectum as a

guide, and the thumb into the vagina to make counter-pressure, freely snip with a pair of blunt-pointed scissors, point after point, as indicated by the pressure of the thumb. This can be done to any extent without the speculum, and without fear of entering either the rectum or the bladder, if the position of the uterus is recognized, and a proper use is made of the fingers in the rectum as a guide. After opening up the vagina as freely as is deemed prudent at the time, a glass vaginal plug, only just long enough to put the canal well on the stretch, without fear of producing sloughing or pelvic inflammation by too great a length, should be introduced, and secured in place by a T bandage. The instrument has a sufficient rim to prevent it from slipping into the vagina, with a depression to receive the urethra along its course, and to protect it from pressure. This useful instrument was devised by Dr. Sims, and is fully described in his Clinical Notes on Obstetrical Surgery. The hemorrhage is sometimes excessive, but is generally controlled as soon as the plug is introduced; and as the instrument is hollow, it possesses all the advantages of a speculum in exposing the condition beyond. If the blood, however, begins to escape along the sides of the plug, it can be controlled by introducing, with a pair of dressing-forceps, portions of damp cotton along the depression made for the urethra, while rotating the instrument until the outlet of the vagina has been encircled by a tampon and the starting-point regained. It is remarkable how much can be accomplished through the absorbents in a few weeks with judicious pressure exerted by this instrument on cicatricial tissue. Experience has fully demonstrated that the use of the scissors is preferable to that of the knife; with less risk of inflammation and certainly less hemorrhage, cicatricial tissue lacerated or divided by scissors, as we shall show hereafter, does not heal so rapidly, and time is consequently gained to bring about this absorption.

The patient should be lifted into bed and kept there for a week or ten days. Opium should be administered freely, if needed. The urine can be drawn by a catheter, if necessary, without removing the instrument; for, if there has been much hemorrhage, it is not well to remove the speculum until it has become somewhat loosened by the discharge. When it is deemed safe to remove the plug, then large warm water injections with a little castile soap should be continued daily, and oftener if the discharge is profuse. After the parts have been properly healed, if necessary, repeat the operation for enlarging the canal until the object in view has been attained.

Before operating for closing the fistula, the bowels should be thoroughly acted on by a cathartic. A table, some four

feet long and three feet in height, covered with several folds of blankets, should be prepared for the operation. The patient should be dressed in a night-gown and drawers, with the abdomen free from any restraint about the waist. It is rarely that any other position is needed than on the left side, with the knees flexed on the abdomen, the body well rolled over on the chest, the left arm turned up over the back, and the head elevated as little as possible. If covered with a sheet, and with drawers, the night-gown of the patient should be slipped up around the waist, so as to protect it from becoming soiled, all of which can be arranged beforehand by a nurse or female attendant. The buttocks must be drawn down to the edge of the table, and a portion of the sheet on which the patient is lying thrown over her, the speculum introduced, and the edges of the sheet properly tucked in between the legs so as to prevent exposure. If Sims' speculum can be properly held by an assistant, it is the best instrument of all others for this operation. A very good substitute, however, is a self-retaining speculum which I have lately perfected so as to answer exceedingly well in a large majority of cases, if the cul-de-sac has not been lost. It withdraws the perineum and elevates the upper labium as is done with Sims' instrument; while for the treatment of uterine disease it now answers every purpose, and brings the cervix in view with the same facility. But I shall always employ his instrument to a great extent from having well-trained nurses accustomed to its use, as well as from its simplicity and the saving of time in adjusting it.

Having decided on the direction for closing the fistula, its edges must be scarified by seizing with a tenaculum the most depending point, and, with a pair of scissors of a proper curve, proceed to remove the inner edge in a continuous strip. It requires but little practice to make this in most cases continuous around the entire fistula to the starting-point; and, if the denuded portion is not of sufficient width, another strip can be removed just outside of it. The scarification should be extended as near the mucous membrane of the bladder as possible, without actually involving it. A number of probang sponges are indispensable, and an active assistant will be able by their means to keep the freshened edges so far free that, unless an unusual hemorrhage takes place, the operator will not be inconvenienced by the bleeding, if scissors have been used for paring the edges. I have for several years confined myself to the use of scissors made with two different curves, and each duplicated in the reverse, so that they may be used with either hand. I may be deemed an enthusiast in my preference for the scissors to the exclusion

of the knife. But, although alike practised in the use of both, I am satisfied that with the scissors I can complete the scarification in half the time, that no portion is left undenuded, and that there is less bleeding; for, since confining myself to their use, I have not had either to delay or to abandon an operation, a frequent occurrence formerly with the knife. Sims' tenaculum of the proper size is much smaller than the instrument generally used, and can scarcely be made too delicate if well tempered. My friend, Dr. John G. Perry, Assistant Surgeon to the Woman's Hospital, has devised a barb-pointed tenaculum, which is a most useful instrument, as it prevents the tissue from slipping off when once fairly caught up. In the choice of needles, I prefer that they should be made small, short, and round, with a slight curve near the point, thickest at the eye, and countersunk to receive the thread. These have the advantage of making a punctured wound, which will be perfectly filled by the wire. The needle in general use, however, which is spear pointed, or triangular in shape, with a cutting edge, and of many times the diameter of the wire, frequently causes a troublesome oozing of blood after the sutures are secured, and sometimes a small fistula will remain along its tract, if by chance its course has been too near the bladder. The needle forceps first introduced by Dr. Sims, has not yet been improved upon for the facility with which the short needle can be introduced at any angle and in a confined space. The point of the tenaculum should be introduced toward the fistula, at a convenient distance from its vaginal edge; then, by a rotation of the hand in the opposite direction, the bladder edge of the fistula will be turned out. Introduce the needle behind the tenaculum, bringing out its point just at the bladder surface, and while still grasping it with the forceps, withdraw the tenaculum, pass its hook over the point of the needle to make counter-pressure, while it is advanced as far as the forceps will allow, then seize the exposed portion of the needle, and draw it entirely through. On the opposite side, seize the edge of the fistula with the tenaculum, in the same manner, and introduce the needle at a corresponding point, near the bladder surface. As a rule, from four to five sutures should be introduced to the inch, and one or more passed at each extremity beyond the fistula, according to the shape of the angle, the necessity of which will be hereafter demonstrated. The needle should be armed with a short silk loop and tied with a half knot at the eye. As each suture is introduced, it is better to follow at once with the wire, for the silk soon becomes weakened after being saturated with the blood and urine It is secured by hooking a small portion into the

silk loop, mashing it flat at the angle, and giving it one or more turns so that it may not slip. Frequently the strain is too great on the tissues to pull the suture through at a sharp angle; then a shallow, forked instrument devised by Dr. Sims, is necessary, so that by pushing one portion after another near the point of exit, by the instrument in one hand and the silk loop held in the other, it may cause the wire to follow in the line of introduction. As to the best method of securing the edges of the fistula, I have an unqualified preference for the simple interrupted suture. Dr. Sims, some nine years ago, abandoned his clamp, having demonstrated that the interrupted suture fulfilled every indication, a fact which my experience since has fully confirmed. While Dr. Bozeman's button suture fulfills in his hands all that he claims for it, and gives an elegant finish to the operation, all do not possess his dexterity in its use. I have used it frequently, and with success, after understanding its application, but at the same time I could never satisfy myself that it simplified the operation, or that I could in any case gain a better result by its use than with the simple interrupted suture. When the fistula is a large one, and a number of sutures are required, to save time and some confusion afterward, shorten the suture by drawing it well through, make a small loop in the short end, and pass the long one through it, to be held by the assistant behind the speculum. Dr. Sims has always insisted on the importance of introducing the sutures with great care, so that the points of entrance and exit should be at the same distance from the edges of the fistula. The principle is correct, in order to avoid the approximation of a scarified surface with an opposite portion which has not been denuded, in which case, of course, no union would take place. But, in reality, to introduce the sutures with any such degree of accuracy is almost impossible, even with constant practice, and with the fistula in a favourable position. Within a reasonable limit this great accuracy is unnecessary, if the sutures are properly shouldered at the time of securing them, so that the point of twisting shall be immediately over the line of union. In other words, each end of the suture must be bent flat on itself to the vaginal surface at the point of exit, and at a right angle again just at the edge of the fistula. If this is done with care, and the suture is only twisted up to the angle formed at the edge of the fistula, it is evident that there can be no turning in of either border. It is generally most convenient to secure first the suture nearest the outlet of the vagina. By following up an end from the fistula with a blunt hook or tenaculum, it can be readily

disengaged from the others held by the assistant. While the long end is held in the left hand, shorten the loop by traction to about three quarters of an inch in length; seize the little slip-knot with the twisting forceps, so as to insure by so doing that both ends of the suture are included within its grasp, and cut off the excess of wire. Make sufficient traction to bring the edges of the fistula together, then shoulder properly with the blunt hook each strand, as already described. After introducing the loop within the slit of the shield, bring the forceps and the handle of the former together and twist until the angle formed by the crossing of the two strands of wire is lost just at the edge of the slit in the shield. The surface over which the suture is to be twisted should be properly made with a very thin edge; therefore. when the wire is bent at a right angle over it, by moderate traction, as the two instruments are brought together and the twisting is not carried beyond a given point, it is evident that with ordinary care the edges of the fistula will be only just brought into apposition. The drawing up of the suture with too great traction, and continuing the twisting beyond the proper point so as to strangulate the parts included within the loop, can be the only cause for a metallic suture ever cutting out, if the parts have been properly freed from tension before the operation. As it is very necessary that the suture should lie flat on the vaginal surface, after it has been secured, withdraw the shield and, while still grasping the suture, in order to lift it up; then bend the wire down by moderate traction over the hook used as a fulcrum; withdraw the tenaculum, and press the wire downward near the end in the grasp of the forceps, as the latter is made to bend the wire upward in the opposite direction; cut the wire just at the angle made by pressure of the tenaculum; it will be then found that by thus turning the suture over and making pressure in the middle, as the free end is bent upward in the opposite direction, the suture will lie perfectly flat. The angle where the suture is to be cut off should be made about half an inch from the edge of the closed fistula. When there is room to admit of doing so, it is well to turn every other suture to the opposite side as a guide afterward, when they are to be removed, should any of them become imbedded in the tissues.

After completing the operation, turn the patient gently on the back, introduce a catheter, and, if the urine is discoloured, inject tepid water into the bladder for the purpose of washing out any blood which may have accumulated. To Sims's sigmoid, or self-retaining catheter, we are greatly indebted for success in this operation, as well as for much

additional comfort to the patient. It should always be made of block tin, that the curve may be altered to fit each individual case, so as not to touch the fundus of the bladder, yet of sufficient length, on being nicely balanced in the urethra, to lie close up behind the pubes. The patient must lie the greater part of the time on the back, and, if possible, preserve this position until after the sutures have been removed. It will add greatly to her comfort to have a double-inclined plane well padded to support the lower limbs when drawn up, which can be removed from time to time to stretch them at full length for a change of position. The support should be open at the ends with a portion of the side removed so as not to interfere with the catheter. We have generally used as a receptacle for the urine a large sized oval bird-bath or cup, such as are placed in cages. The catheter must be removed several times a day for the purpose of cleaning it by forcing a stream of water through it by means of a large syringe, and the patient must be instructed to notice carefully that the urine has a free escape at all times. It is well to have two catheters, so that one may be introduced immediately on the removal of the other to be cleaned. A sufficient quantity of opium should be administered daily to keep the bowels constipated until the sutures are removed, and the diet regulated with a view to this end. The sutures are usually removed from the eighth to the tenth day, by gently elevating each in turn with the forceps, and clipping the nearest side of the loop so that, as the suture is being withdrawn, it still continues to bind the parts until its exit. Twelve hours afterwards, a dose of castor oil should be administered. The catheter should be continued in use for a few days longer, according to circumstances; and, from the fourteenth to the twentieth day, the patient may set up.

I have now reviewed, but only in brief, the general management and mode of operating. To have entered more into detail would have been impossible, without repetition in anticipating many practical points to be hereafter illustrated by cases, which shall be carefully selected with this object in view.—*American Journal Med. Sciences, Oct.* 1867.

REMOVAL OF INTRA-UTERINE POLYPI.—Sir J. Y. SIMPSON exhibited at the Edinburgh Obstetrical Society (Feb. 13, 1867) four intra-uterine fibroid polypi, which he had removed from three different patients within the last eight or nine days.

The first of these cases was an unmarried lady from England, who had suffered from hemorrhage for twelve years, and sometimes had been so greatly reduced by the discharge as to be invalided and bedridden for weeks. She was very

white and blanched. The os uteri was opened up with sponge-tents, polypus found in the uterine cavity, and its neck divided without difficulty with a small polytome. The removal of the polypus from the uterine cavity after its detachment was by no means easy, as it escaped readily from the vulselli and polypus forceps that were used to catch and extract it.

In the second case, an unmarried lady from Glasgow, the hemorrhage had only lasted fourteen months, but had been sometimes very excessive. The same means of diagnosis and treatment were used, and the same difficulty met with in attempting to remove the free polypus, which was the size of a large filbert, through the small os. Ultimately the os was divided to allow of the possibility of extraction.

The third case occurred in a married patient in Inverness-shire, who had had great intercurrent menorrhagia for nearly eighteen months. Sir J. Y. Simpson visited her at her own home in Inverness-shire, and thought he detected the presence of polypi with the uterine sound; but as a long diagnosis with dilatation was required, she was removed to Edinburgh when her strength was sufficiently recovered. In this instance, after the os uteri was opened, first one semi-pediculated polypus was felt and removed, and then the presence of a second similar one was discovered high up in the uterine cavity, and detached by partially cutting through its pedicle, and then dragging it down with vulselli. In regard to these cases of intra-uterine polypi, Sir J. Y. S. added the following inferences:—

1. In such cases of intra-uterine polypi, the presence of the disease may be guessed by the increased size of the uterus, and particularly its cervix, which sometimes expands above as it does in a threatened abortion, and by a persistent and sometimes a great menorrhagia. Occasionally it can be felt by the uterine sound, used like a metallic finger, but usually not with any great certainty. The only certain mode of diagnosis consists in dilating the cervix uteri so as to feel the interior of the uterine cavity with the finger, and touch the polypoid cavity. He adverted to a case which he saw with Dr. Wood, many years ago, of a patient who died of hemorrhage from intra-uterine polypi. The autopsy in this case first suggested the idea of reaching and diagnosing the intra-uterine tumour by opening the cervix with some dilating body.

2. For this purpose, sponge-tents were suggested and used by him; and more lately Dr. Sloan proposed tangle-tents. He believes that tangle-tents are to be preferred when a slight dilatation, as for dysmenorrhœa, was required; but for a

greater degree of dilatation, when we require to introduce the finger and remove a polypus, sponge-tents are preferable.

3. In making the diagnosis, it is usually necessary to push down the fundus uteri with one hand pressed against the abdominal parietes, and by the fore-finger of the other hand search the interior of the uterus.

4. In removing intra-uterine polypi, he had sometimes found torsion an easy plan, but the forceps must be strong in blade and joint to give the necessary power. Torsion succeeded best when the pedicle was small. When the pedicle was large and thicker, and when the tumour was only of a polypoid character, division, with the tenotomy knife, of the tissue covering of the thick neck, or even of the body of the polypus, greatly facilitated its extraction. A small polyptome, as in two of these cases, was sometimes the simplest method of dividing the pedicle; and perhaps a loop of a wire ecraseur might be passed over it, but usually not without much difficulty.

5. But our armamentarium was chiefly deficient at the present time in proper means to seize and extract the polypus after it was separated. Fibroid polypi are elastic, and rapidly jump out of the catch of any form of polypus forceps. Sir J. Y. Simpson had tried an improved form of lithotrite to lay hold of them, but it had also failed. Vulselli with very long teeth were difficult to open in the narrow uterine cavity, and the teeth were apt to catch hold of the uterine walls. The best instrument which he had yet found was a vulsellum provided in each blade with three small and short teeth; but he suggested to the Society whether some of the members could not invent a more fit and useful instrument for the purpose.—*Edinburgh Med. Journal*, June, 1867.

On Yellow Fever.—Abstract of a Lecture delivered at the Bellevue Hospital Medical College, Sept. 23d, by Prof. Warren Stone, of New Orleans. Yellow fever is a disease peculiar to warm climates, and is dependent upon some subtle cause, the nature of which is unknown; probably it is atmospheric, but different from all other known causes of disease. Filth, and the unhealthy surroundings of cities will not develope it, though, of course, by lowering the vitality of the system the inhabitants are less able to resist its deadly influences. It frequently attacks the healthiest localities, and, when prevalent in the country districts, where salutary hygienic conditions are generally assumed to obtain in the highest degree, it rages with greater virulence and severity than in the filth-abounding cities. Although much has been said and written of its origin and

development, the plain truth is, we know but little beyond the fact, that it seems to start from some focus or initial point, and to travel as it were in atmospheric waves, for it has been noticed repeatedly that when the fever is prevailing along the gulf ports, it reaches New Orleans and our Southern coast in the following season. It spreads from the coast and rivers backwards, where it has its favorite fields, the boundaries of which are sometimes sharply and abruptly defined. The intensity of the poison is very different in different epidemics, and even at distant places during the same epidemic, as may be seen at present, for while at Galveston and other towns in Texas, the mortality has been excessive, in New Orleans, thus far, the disease has proved unusually fatal. He (Prof. S.) does not believe it spreads by personal contagion, but by transmission of the peculiar atmospheric influence which causes the disease. The opportunities he has had for watching and studying have confirmed him in this opinion, which he was especially anxious should be clearly understood, on account of its bearing upon the quarantine question, and also to prevent the needless fright and alarm which the friends, and even the families of those suffering from yellow fever are too apt to exhibit. In New Orleans it has been repeatedly noticed that men whose business compelled them to go into sections of the city where the fever was raging would be attacked with the disease, while their families who resided outside the infected districts, were never known to contract it from these patients when removed to their own homes. At the Charity Hospital, situated outside the limits of infection, there were at one time so many fever patients brought in that it was impossible to obtain sufficient nurses and help to care for them.

The abominably and filthy condition of the hospital did, however, generate a fever, but it was closely allied to typhus, or jail fever, and in no way analagous to yellow fever. Many other instances were adduced in support of the same view. As regards treatment, the idea was too prevalent that this fever was a powerful entity, and must be met and controlled by powerful remedies. Every plan of treatment that ever was dreamed of has been largely employed at the South. Experiments tried on a large scale have shown that the mortality is about the same for all special plans of treatment. But the best results are obtained from non-active interference. If the patient is seen early in the attack, and the stomach or intestines are loaded with ingesta which by fermentation might produce disturbance, evacuate the bowels with a moderate dose of oil,

or an enema; but avoid the prodigious physickings which at one time were so much in vogue, and, in spite of which, strange to say, patients would sometimes get well. Keep the patient absolutely confined to his bed, and prolong the sweating stage, by diluent drinks and warm sponging; but do not produce exhausting perspiration. A single dose of quinine of 4 to 20 grains, at this period, will prove serviceable—care must be taken to nourish the patient with food easily assimilable—but usually no further medication is required. Stimulants, as a rule, are well borne, and generally craved by the patient. If so, they may be allowed according to taste; the preference being given to good brandy or malt liquors. When the nausea and retching that precedes "black vomit" appear, and before the blood exuded into the stomach becomes decomposed—relief may frequently be obtained from some of the alkalies with minute doses of morphia—say 1-32 of a grain. Patients are very susceptible to the action of opiates, and care must be taken in their administration. The essential things in the treatment, no matter what plan of medication may be adopted, are to nourish the patient, and to maintain absolute repose in the recumbent position. Firmness, and even an imperious manner, are sometimes necessary to ensure the proper keeping of the patient, for they are subject to peculiar hallucinations, and are not responsible beings.

The Application of the Actual Cautery in the Treatment of the Pedicle of Ovarian Tumors.—Mr. Baker Brown read a paper before the Medical Association, at its recent annual session, on the treatment of the pedicle of ovarian tumors by actual cautery. This practice had been adopted by the author in thirty-six cases, twenty-three of which had previously been given to the Profession in two papers read before the Obstetrical Society. Mr. Brown now gave in detail thirteen more cases. The following analysis will show the result of this treatment: Of the whole number, five have died, of which two occurred in the first twelve and three in the present series. In not one of these had death resulted where the cautery had been used alone, with the exception of the second; here death was due to hæmorrhage from the site of an adhesion in the utero-rectal fold, which could not be safely reached by the actual cautery. In the remaining four, one or more ligatures had been used in addition to the cautery; the latter, from various causes, not having perfectly secured the pedicle. In these four, the causes of death respectively: 1. Peritonitis, with hypertrophied heart and thickening of aortic valves. 2. Peritonitis;

no autopsy allowed. 3. General Peritonitis. 4. Shock; a small quantity of coagulated blood on the stump. Mr. Baker Brown drew the following conclusion from his experience of this treatment: That it is preferable in all cases first to employ the cautery. Should this fail, no harm has been done, and the ligature may be resorted to without disadvantage. The method of using the clamp was fully explained, and a newly-improved instrument was exhibited. This clamp possessed parallel blades, and the bone, formerly fixed to the back of the clamp to diminish heat during the division, was now separated, except by two long rivets, from the blades.—*Medical Times and Gazette.*

Mr. Spencer Wells, paid a flying visit to New York last week, and was received with marked attention by the Profession. Chief among the entertainments given him was a reception by Dr. Fordyce Barker, at the Mott Memorial Library, to which several hundred physicians of the city and vicinity were invited. On Friday Mr. Wells delivered a Lecture on Ovariotomy, at the Bellevue Hospital Medical College, which was replete with good sense and valuable information. Mr. Wells was exceedingly felicitous in his style, and expressed himself as being highly delighted with the advantage students of medicine enjoy in New York, which he said was far in advance of any afforded in Europe.—*Medical Gazette, Sept. 28th.*

Mr. Spencer Wells, the distinguished ovariotomist, has just made a flying visit to this country, returning home by the steamer of the 25th ult. While in New York, he delivered a lecture on Ovariotomy at Bellevue Hospital Medical College, which was listened to with much attention, and is very highly spoken of. In Boston, he addressed the Boston Society for Medical Improvement on the same subject. There can be no doubt that the practical good sense of his remarks will have a powerful influence on the minds of medical men here, who have been heretofore far from unanimous in regarding this capital operation with approval.

In New York, Mr. Wells was socially entertained by Dr. Fordyce Barker, and in Boston Prof. D. H. Storer gave a number of his professional friends a similar opportunity of becoming personally acquainted with him.—*Boston Med. and Surg. Journal, Oct. 3.*

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INTRA CAPSULAR FRACTURES OF THE CERVIX FEMORIS. Read before the St. Louis Medical Society, November 2d, 1867. By A. J. STEELE, M. D., Professor Adjunct of Surgery in the Humboldt Medical College.

MR. PRESIDENT: I desire, very briefly, to call the attention of the society to a point of practical importance in the matter of Intra Capsular Fractures of the Cervix Femoris.

When we consider that perhaps no single subject in the department of surgery, has received more thought and attention, or has given rise to so much difference of opinion, and to such heated discussions among distinguished surgeons, both at home and abroad, as has this one of fractures of the neck of the thigh bone within the capsule, we might reasonably conclude that there was nothing more to add and but little more to be said on the matter, but the fact that the profession is not yet agreed on certain points pertaining to this subject, evidences that the entire truth has not been attained, and that the field is still open for research.

Whether or not we may have osseous union following this lesion, a question warmly controverted by Dupuytren and Sir Astley Cooper in their day, and since continued by their partizans down to the present time, I will not now attempt to determine, but content myself, with directing your attention to an anatomical condition heretofore unrecognized and overlooked, but which, as I hope to demonsstrate, may prove a most important element towards a useful if not successful issue in the treatment of Intra Capsular Fractures.

At the lower part of the neck of the thigh bone is to be found a fasciculus of fibrous tissue, ligamentous rather than periosteal, as I have determined by a microscopic examination, extending from the cervical base upwards and inwards to the inferior and outer portion of the femoral head- In reality it is an offshoot from the capsular ligament, which instead of passing with the other fibers to the edge of the acetabulum, hugs the bone more closely, and terminates at the head and inner part of the neck. This fasiculus is variable as to its attachment, reminding one in that particular of the columnæ carnæ of the heart, being inserted into the bone, occasionally only at its two ends, and again along its whole osteal border. It varies also as to its size and vascularity; I have seen it at times nearly as thick as the little finger, and at others consisting of but a shred or shreds; intermediate between these is the usual size. Vessels, offshoots of the inferior division of the deep branch of the gluteal artery, pass within this structure upwards and inwards in the direction of and to supply the head of the bone, this fact I have verified, and in some instances the vessels were found to be of considerable magnitude. It is surrounded entirely by synovial membrane, which of course adds to its bulk. Its presence I believe to be universal, and in some instances similar offshoots from the capsular ligament, though smaller, are to be met with in other parts of the neck, especially at the superior and anterior portions.*

With two or three exceptions, the anatomists make no mention of this arrangement. Weitbrecht followed by Harrison, has given the name *retinacula* to these fibrous bands, and the latter, speaking of the insertion of the capsular ligament, says: "In the latter direction" (referring to the internal or upper part), "several distinct fibrous cords are

*A specimen of the head and neck of a thigh bone, beautifully illustrating the arrangement described, was exhibited to the society; the *figmental* ligament was 1¼ inches in length, ½ an inch in breadth, and from ⅛ to ¼ of an inch in thickness; had been taken from a subject a few days previous.

observable on the anterior and inferior surfaces particularly, passing upwards into the periosteum beneath the synovial membrane. These cords are variable, and in some instances are very much developed," an arrangement deserving a more complete description surely.

Several surgical writers in the discussion of intra capsular fractures, speak of a cervical ligament, reference is had, I presume, to the structure to which I am now asking your consideration.

My own attention was first directed to this subject, while I was yet an undergraduate, by a case which came under the observation of my preceptor, Prof. E. M. Moore. An elderly lady had fallen on a slippery pavement and injured her hip, an examination of which left doubts in the minds of the professional attendants, as to what the exact lesion might be; however, she was kept quiet in bed with her limb over a pillow, but being attacked with an acute disease (an affection of the chest) died on the eighth day after receiving the injury. A necropsic examination found the cervix femoris fractured within the capsule, and the broken portions held in apposition by a firm fibrous band, such as I have above described, which, not being ruptured when the bone was broken, acted the part of a splint, preventing displacement, and consequently the signs that are given as characteristic of this fracture. Absorption of the bone, which I believe universally occurs to a greater or less extent after this accident, had made such rapid progress that half the neck had disappeared.

A dozen or fifteen cases have come to my notice, the histories of which have rendered so probable a pathological condition similar to the case just described, as to leave no doubt whatever but that they were identically the same. And I am led to believe, that cases of intra capsular fractures are not unfrequent in which the retinaculum above described remains unbroken, so that the symptoms of fracture of the neck, as given to us by the teachers

are wanting; consequently the extent of the injury being unsuspected, unrecognized, the patients, it may be, are allowed to use and throw weight on the limb, or because of improper treatment, or from rough manipulation on the part of the surgeon in his zeal to determine a correct diagnosis, such force is brought to bear on the part that the figmental ligament is broken across, and the result suddenly made but too patent. But suppose these cases were early recognized and properly treated, would we not certainly have, (I do not claim osseous), firm fibrous union, and thus servicable limbs be saved.

Surgeons give us as a reason why we have non-union after this fracture, that the inner or pelvic fragment receives vascular supply only through the ligamentum teres, which indeed is so limited that the reparative exudate is not furnished in sufficient amount; but with the retinaculum saved, the head receives additional supply by means of the vessels passing through this fasciculus from without inwards, and thus the pabulum furnished the acetabular fragment is increased, and the chances of union made greater. Consider also that the fragments are held in close apposition, in fact so interlocked that motion is not allowed between them, and you have another important element towards favorable union.

But just here a pertinent and practical question might be asked: How is the surgeon to know and recognize these cases when they do occur? Well, these are just the doubtful cases. A surgeon called to an injury of the hip joint would not hesitate over a dislocation, nor would he be at a loss to decide a fracture of the neck in which all the close investments were ruptured, allowing the usual shortening, eversion et cet; but he might well suspicion the existence of the accident which we have been considering, if the patient was over fifty years of age; for in advanced life the femoral neck becomes so fragil that it is readily broken, in truth a force may be applied just sufficient to

fracture the bone without tearing asunder the figmental ligament, and in such cases it will be found that only a moderate force was necessary to produce the lesion—such as stepping off the curb-stone, tripping on the carpet, falling to the ground and striking on the trochanter, &c. In the young, or adult middle aged subject, in whom the bone is firm and strong, it is difficult to conceive of a fracture of the neck without rupture of its investments, for a force applied sufficiently powerful to break the bone would necessarily tear asunder the ligament, but not so in advanced life when the neck, like a pipe stem, would snap by a force not great enough to rupture the ligiments. In such a case as the latter, the shortening would be slight, if indeed at all appreciable; the limb would be in line, possibly everted; more or less deep seated pain; motion allowable, but voluntary movements prevented by apprehension of pain; crepitus possible on the first examination, not however likely to be reproduced because of the interlocking of the fragments. By taking all these things into account, the well informed surgeon would readily determine a fracture.

Suspicions of such an accident should admonish the utmost care and gentleness in the manipulation and use of the limb, lest the figmental ligament be torn and thus the aid of a useful ally be forever lost. Correct diagnosis is important, but when in his zeal to determine it, rough handling is used and irreparable mischief done by the surgeon, he surely is overstepping the requirements of duty, and in a case like that under consideration, deciding between a useful limb or a fearfully crippled appendage. So we would have the treatment of such a case conducted from the beginning, with the view to the saving any ligamentous filaments which might remain. Powerful muscles, whose action is to separate the fragments, must be overcome; this is best done, and with the most comfort to the sufferer, after Gurdon Buck's plan for the treatment of fractured thigh bones, namely—by weight and pully, in

which case as the muscles gradually relax their tension, the weight should be diminished. The longer this treatment can be followed up consistent with the general good condition of the patient the better, for the union is necessarily slow, owing to the meager supply of blood to the part. After a time, exercise on crutches with a thigh and leg extension apparatus, in which support would be had, above from the perineum by a crutch head, and from the haunch bone by a plate, with extension by the leg and foot, would be very proper. By these means the muscles would be controlled and the condition for repair kept up.

I might consume much of your time relating cases of intra capsular fractures which were not at first recognized as such, because there was not present shortening, nor crepitus, nor eversion, but which very soon, because of weight thrown on the limb, or because of rough handling, or because of improper treatment, suddenly shortened up and gave unmistakable evidence of this too serious lesion; and these are the cases to which I have directed your attention, and which we would urge you to be on the *qui vive* to recognize.

In closing, I will express a belief I entertain, that many cases of so called chronic rheumatic aithirtis of the hip joint, and cases of senile atrophy of the joint and neck, have been nothing more nor less than unrecognized fractures of the cervix, with an attempt at repair by unaided nature. In fact, just such cases as we have been considering

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Thoughts on Cholera Infantum and the Diarrhœas of Chillren. By Edward Montgomery, M. D.

Writers on the diseases of childhood describe several kinds of Diarrhœa; some authors base their classification on symptomatology, whilst others discriminate them according

to anatomical lesions and *post-mortem* appearances. It is well known however, that the simple catarrhal diarrhœa may quickly and suddenly run into the dangerous inflammatory form, and the common "teething brash" may very soon assume the protean type of a severe dysentery. Neither do *post-mortem* appearances always correspond to the signs and symptoms exhibited during life. These facts admonish us then, to use all patience, diligence and judgment in our diagnosis, prognosis and treatment. Even the most simple case of diarrhœa should be carefully watched, as we know not into what a perilous condition it may lead. If we are called upon to attend a little patient, who has been, without any apparent premonitory symptoms, seized with almost constant vomiting, purging a thin dirty pale, greenish or pinkish fluid, with excessive thirst, fever, great restlessness and prostration; we know that we have got a case of Cholera Infantum to treat, and decided and prompt attention is at once rendered; but in any of the ordinary diarrhœas there is less certainty and fewer incentives to strict scrutiny and judicious treatment; consequently disappointment, dissatisfaction and chagrin are the frequent results.

Although the simple catarrhal diarrhœa, whether arising from the irritation of dentition or not, is seldom fraught with great danger, yet it is highly necessary to control it, for if suffered to continue for a lengthened period it will at least weaken and reduce the child, and render it obnoxious to every deleterious agency which may happen in its way: or it may soon begin to corrode and disorganize the glands and membranes of the intestinal canal, and run into a dysentery or ulceration of the bowels. Mothers and nurses should be educated into the important fact that all forms of diarrhœas in children, no matter what may be their exciting cause, should be promptly and scientifically treated. I have often been vexed and provoked at the ignorance or carelessness of the mother or the nurse when excusing the tardiness of consulting the physician in prolonged cases of bowel

complaints. A very common excuse is, "Oh! the child was teething and I thought it would not do to check up its bowels at such time," or—"the neighbors all told me not to '*doctor*' it, for strong medicine would kill it;" or, "the old women advised me to give it Benne Plant, Winslow's Syrup, or Paragoric and it would do well enough." And in this way the poor little sufferer finally becomes so prostrated and emaciated that the best physician in the land can avail nothing; or the prolonged diarrhœa has eventuated in ulceration, incurable dysentery or *Tabes Mesenterica.*

Parents and nurses should also be made to understaud that it is not by much drugging, nor by the use of powerful medicine, that their children are to be cured, but by proper hygienic and sanitary measures, and a few simple prophylactics, correctives and restoratives. Every one should fully understand that the educated physician will never suddenly dry up a child in a "teething brash:" will never strive to cure an inflammatory diarrhœa with astringent tinctures and hot stimulants, or endeavor to cut short a Cholera Infantum with capsicum and camphor.

If a case of simple diarrhœa excited or aggravated by dentition, a few tepid baths and some of the following prescriptions will generally suffice:

Recipe.—Liquor Potassa; Vin. Ipecac ää dr. ss; Mucilag. G. Arabic, oz. 2. S. A tea-spoonful every 2 or 3 hours until better.

Or, Ext. Hyosciami, gr. 3; Sod. Bicarb., dr. 1; Syrup Ipecac, dr. 2; Aq. Menth. Vir., dr. 14. S. A tea-spoonful every 2 or 3 hours.

Or, Pulv. Doveri, gr. 6; Hydrarg. cum. Creta, gr. 20: Divid in ch. no. 6. S. One powder whenever much diarrhœa.

The above prescriptions are intended for a child about a year old, and are only to be given occasionally as the urgency of the case requires.

In simple diarrhœa, occurring from unhealthy location, foul

air, bad ventilation, want of cleanliness, &c., we must endeavor to improve the sanitary condition as much as possible: enjoin strict cleanliness, good free ventilation, have the child carried out in the cool of the morning, and evenings, but neither too early to catch the damp morning dews, or too late to inhale the foggy air of night: the hot mid-day sun must also be sedulously avoided; and the child must not be tossed about too much or made to undergo fatigue. Restoratives, mild astringents and tonics will be best adapted for this form of disease, viz:

Recipe.—Aq. Ammonia, dr. ss; Infus Rad. Columbo, oz. 2. S. A tea-spoonful every 3 hours—for a child 12 months old.

Or, Tinct. Columbo, oz. ss; Tinct. Catechu, oz. 1 ss. S. Half a tea-spoonful in sweetened water every 2 or 3 hours.

The Aromatic Sulphuric Acid is also an admirable remedy in these cases: the Extract Hamatoxyli and Tincture of Bark may also be advantageously employed.

In cases excited by crude or indigestible food, a mild evacuant may first be administered and either of these prescriptions will be found suitable:

Recipe.—Ol. Ricini opt, oz. ss; Pulv. G. Arabic, dr. 1; Pulv. Sacch. Alb., 1 dr.; Syrup Orgeat, oz. ss; Aq. Flor. Aurant, oz. 2. S. A tea-spoonful every 2 hours until the desired end is attained.

Or, Magnes. Sulph., dr. 2; Syrup Rhei Ar., oz. 1; Aq. Anisi, oz. 1. S. A tea-spoonful every 3 hours until it operates.

Or, Hydrarg. Chlor. Mit., gr. 3; Pulv. Rhei, gr. 10; Divid in chart. no. 3. S. Give one powder and repeat in 4 or 5 hours if necessary.

After the action of the aperient give a mild anti-acid tonic such as the Liquor Potassa and Infus. Columbo, or Liquor Ammonia and Infus. Hematoxyli, or Spt. Ammon. Ar. and

Tinct. Catechu; paying most careful attention to the quantity and quality of the food, and the frequency of its administration. Indeed in all these diarrhœas we should give particular instructions as to dietetics: if the child is on the breast, it should be determined that the nurse is giving good milk; if weaned we should try a variety of nutritious dishes until we find that one which will on trial prove the most salutary. I have seen poor, dried up, delicate mothers, with very little suck in their breasts, raise fine robust children by the aid of loaf bread and good rich milk; and again I have witnessed fine healthy children, who got very little milk of any kind, flourish on crackers and gravy, pot liquor and soups. But notwithstanding all this, whilst affected with diarrhœa, the food must be in small bulk, nutritious, and easy of digestion. With care and judgment in diet, supporting the strength with non-exciting restoratives and controlling the diarrhœa by mild astringents, never allowing it to run the child into emaciation, we will fulfill all the essential and necessary indications of treatment. In very obstinate and prolonged cases we often find them assimilate dysentery; passing a little bloody mucus, with tenesmus and *prolapsus ani.* In this condition, in addition to the restoratives and astringents by the mouth, we must employ medicated enemata; and a most excellent one is a combination of Sulphate of Zinc, Morphine, Glycerine and water. Nitrate of Silver may be substituted for the Zinc in some places where we suspect ulceration. The decoction of white oak bark and laudanum is also a very good enema in these cases: but we must always combine a small portion of some opiate preparation with the other ingredients, and we must also remember that a small quantity should be used or the injection will not be retained; about two table-spoonfuls will be a large enema for a child a year old, and only enough opiate combined with it to soothe the local irritation.

Cholera Infantum is a disease which sets in so suddenly and so violently, that we must act both promptly and

vigorously or the little patient will be snatched away before we accomplish anything. If the child is plethoric three or four leeches should be applied to the abdomen, and in all cases large hot poultices should be kept constantly over the stomach and bowels: simultaneously with these topical appliances we should administer either of the following laxative mixtures to clear out the *primæ viæ*, carry off all irritating substances, and lessen the hyperæmia in the alimentary canal.

Recipe.—Ol. Ricini Opt., oz. ss; Pulv. G. Arabic, dr. 1; Pulv. Sacch. All., dr. 2; Aq. Flor. Aurant, oz. 2. S. A teaspoonful every hour until it operates freely.

Or, Magnes. Sulph., scr. 3; Pulv. G. Arabic, scr. 2; Pulv. Sacch. Alb., dr. 3; Aq. Menth. Vin., oz. 2. S. A tea-spoonful every hour, or oftener, repeating the dose every time it is thrown up.

Sometimes no fluids of any description will remain on the stomach, in such cases, a grain or two of the mild chloride rubbed up with a little sugar, should be laid on the tongue every hour until it causes free action on the bowels.

As soon as the purgative action of the medicine has taken place we should give a small dose of some opiate preparation with the view of soothing and allaying the inflammatory irritation of the stomach and bowels. I believe it is the general custom with most physicians, to give opiates from the very commencement of the treatment; but I prefer allowing the aperient to act first, so that any *materies morbi* which may be present may be quickly expelled. During the administration of the purgative, we should allow very little drink for fear of increasing the emesis; but the thirst is so excessive that we must allow a little, and some cold barley water, cold gum water, or decoction of Irish Moss, with a little ice will be the most appropriate. If the child is on the breast it will be well to keep it from it until the danger is past. Besides the hot fomentations and poultices, if the child is very nervous, excited, and the febrile symptoms high, a few warm baths may be necessary.

This febrile excitement and nervous irritation should not lead us to the employment of heroic anti-phlogistic remedies, for after the first ten or twelve hours, depleting measures are not only inadmissable, but tonics and restoratives are generally demanded, and will be found of essential service. It is in this transition period of the disease that the greatest difficulty lies; and here great judgment and care is required lest we give stimulants too early or too freely; or on the other hand withhold them too long, until hopeless prostration and passive congestion has taken place. Very soon after the employment of the leeches and aperients we must begin to sustain our little patient, by giving a little decoction of Irish Moss with a few drops of brandy, or some fresh rich milk and brandy, or some tea with cream and sugar in which may be combined some Catechu or Ext. Hematoxyli. When the acute stage is fairly over and there is cold extremities and great debility, we must resort to active stimulants and tonics, selecting either of the following which may be found to agree best with the patient:

RECIPE.—Aq. Ammonia, gutt 20; Ext. Cort Cinchona, dr. 1; Syrup Cort. Aurantii, oz. ss; Aq. Menth. Virid, oz. 1 ss; Pulv. G. Arabic, dr. 2. S. A tea-spoonful every one or two hours.

Or, Spt. Ammon. Aromat., dr. 1; Ext. Hematoxyli, dr. 1; Pulv. G. Arabic, dr. 2; Pulv. Sacch. Alb., dr. 2; Aq. Flor. Aurantii, oz. 2. S. A tea-spoonful every one or two hours.

Or, Pulv. Acacia Catechu, dr. 1; Pulv. G. Arabic, dr. 3; Bismuth Subnit, dr. 1; Syrup Pruni Virg., oz. 1; Aq. Cinnamomi, oz. 1. A tea-spoonful every 2 hours.

It should be borne in mind, that stimulants however necessary as temporary remedies in this disease, must not be carried too far or their use kept up too long, but should be gradually withdrawn and their place supplied with suitable food. Here again the raw beef will be appropriate, beef or mutton soup, veal soup, good rich milk and grated crackers, or thickened with starch, tapioca, sago or arrow-root: and

we should try these different kinds of food, and continue the use of that preparation, which may seem to best agree. Sometimes even the arrow-root, iceland moss or sago will not digest, when the grated raw beef will be happily assimilated; and again milk itself may disagree, whilst a cordial composed of white of egg, loaf sugar and a few drops of brandy will agree charmingly. It will be found that the beef tea, mutton veal or chicken soup, will digest and be assimilated better if given cold and without seasoning.

In the advanced period of the disease if diarrhœa or dysentery persists, notwithstanding the use of the astringents above mentioned, injections containing Sulphate of Zinc, Nitrate of Silver or the Lactate of Zinc may be advantageously employed. Solutions of Gallic Acid, Tannin, White Oak Bark, Tormentilla or Catechu may also be administered *per anum* with good effects. A little of some of the preparation of opium may, occasionally, be combined with the injections with the view of soothing the patient, allaying the irritation of the bowels and promoting the retention of the healing and astringent fluid in the weakened and diseased parts.

REPORT OF A CASE OF SPONTANEOUS RUPTURE OF THE PREGNANT UTERUS. By GEO. BERNAYS, M. D., Lebanon, Ill.

Though obstetrical literature records numerous cases of spontaneous rupture of the pregnant and parturient uterus, I feel justified in laying the following case before the medical public, on account of several features which accompanied and complicated it. I would here also remark that it is my belief, based on sufficient evidence of the fact, that many cases of this accident, affording sufficient interest for publication, have been unjustifiably withheld from the faculty, partly through negligence and partly through fear of malicious censure.

Mrs. V., a woman of about thirty-two years, of middle size,

and by occupation a washerwoman, had had four children, at intervals of about two years, each delivery occurring at the regular time for the completion of utero-gestation. After these, she had two premature deliveries, occurring between the sixth and seventh month of pregnancy. She was delivered of her second child by means of the forceps and had suffered afterwards from considerable prolapsus of the uterus, which increased after each subsequent delivery. Previous to her present pregnancy, her womb had always risen into the abdominal cavity at an early period in gestation. She stated, however, that about three years ago, during her fifth pregnancy, her uterus had remained, to a considerable extent, outside of her pelvis, and that she had been prematurely delivered at about the end of the sixth month, without any medical assistance. She stated that this labor was so easy, and had interfered so little with her usual duties, that two days afterward she had resumed, not only her housework, but her washing and ironing. To this violent and constant exertion must be accorded the non-rising of the pregnant uterus at so advanced a period.

I was called to see this woman on Tuesday, the 14th of June, at 10 o'clock, A. M. She had been at a school festival, half a mile from her home, five days before, on Thursday of the previous week. From Thursday to Friday night she had experienced severe labor pains, but had had none since that time. On Sunday she had called in a mid-wife, who did not find her condition sufficiently serious to warrant the attendance of a physician. On palpation I discovered that her abdomen was very small to contain a uterus in the seventh month of gestation. The uterus extended but little above the symphysis pubis, was very firm to the touch and difficult to be moved toward either side. As far as could be ascertained by palpaption, it seemed to be symmetrically developed. The vagina was found to be prolapsed to the extent of eight inches before the labia majora, and so large in circumference as to be scarcely encircled by my hands. About three inches

within the prolapsed vagina, I found the neck of the womb and protruding from its spasmodically contracted orifice was several inches of the umbilical cord, with the right foot of the fœtus, the toes being turned upwards. The midwife stated that she did not know when the foot and umbilical cord had made their appearance, but knew that they had not on Sunday nor on Monday night. This had been the only change which had occurred during her attendance, and this had taken place without any perceptible pain. The patient stated that she had felt a cold sensation in the lower part of her abdomen as early as Sunday night. She had had a passage from the bowels the night before and had also passed urine freely. She complained about nothing specially. There had been no loss of blood, and, strange to say, there had been no discharge of water from the womb. She thought she had felt movements of the fœtus in the morning. The pulsation of the umbilical cord was extremely feeble, if at all observable. There being no chance, in my opinion of the child being viable, even if born alive, I saw no necessity for immediate action. I inserted a tampon, with a view to irritate the vaginal part of the uterus and thus awaken labor pains. Of course the tampon was made to press but lightly upon the mouth of the uterus, otherwise it would have interfered with the little circulation remaining in the vessels of the cord. Five hours of this treatment produced no labor, nor, indeed, any change, except to relieve to some extent the spasmodic contraction of the os uteri. I now expected to be better able to extract the child by turning during traction so as to allow the head to slip more easliy over the excavatio sacralis and to prevent the chin from catching at the sympyhsis pubis, though from the smallness of the child, I had little reason to expect any difficulty in this regard. The extraction of the fœtus, however, proved very difficult, and rotation utterly impossible without such force as to cause actual injury to the spinal column. I succeeded, however, by exerting great power, in

extracting the child as far as the axillae, though whenever I suspended traction the child was drawn back into the womb by some power within. The development of the arms proved another difficulty, though after these had been delivered, the weight and size of parts of the child already delivered proved sufficient to counterbalance the mysterious vis-a-tergo. During extraction the epidermis of the fœtus had given away at several points, which led me to believe that the fœtus had been dead for some time. I now thought it safest to deliver the incarcerated head with a small pair of forceps, which were introduced and locked with little difficulty. A trial traction showed that the forceps had not embraced the head. Two more attempts with the forceps very carefully introduced and locked, with some variation in depression and also in elevation of the fenestrated part, met with no greater success. I had all along exhibited those anti-spasmodics and anæsthetics which are customary in such cases, and which had never failed in any former case to relax the womb, and which had done so in this, to some extent. I now gave up the forceps and resorted to traction again. During a somewhat stronger effort than previously, an intervertebral cartilage of the neck gave way, and by continuing the traction a rent was made in the skin at that point. There was no hope after this for delivery by traction. Decapitation was the only plan remaining, after which I hoped to be able to introduce my hand and deliver the head. I decapitated as near the occiput as possible, cutting between two vertebra, so as to protect against spicula of bone any soft parts that might come in contact with the stump. On entering the uterus with my hand, the placenta was felt to be shrunken and much less moist than under ordinary circumstances. On advancing further into the cavity, and feeling for the head, I found the uterus empty! Now and now only I ascertained what I should have diagnosticated much sooner, the uterus was ruptured. I now found the rent, it being *apparently* in the left half

of its posterior face. The only excuse which I can offer for not diagnosticating this condition sooner, consists in the fact that two prominent symptoms, which are constant in all cases of this kind on record, were entirely absent in this. These were the utter prostration immediately after the rupture, amounting in many cases to a syncope of more or less duration, and the unsymmetrical form of the womb, the result of the parts lying outside. In this case the substance of the uterus must have contracted almost immediately around the neck of the fœtus, encircling it like an elastic ring, with a firm clasp.

Here then was the clue to all the strange symptoms which I had previously witnessed. Here was the reason for the cessation of labor for nearly five days; here the explanation of the extreme difficulty encountered in extracting a fœtus of little more than six months; here the reason why it could not be turned on its longitudinal axis; here was the explanation of the powerful traction in the rear; here the explanation of the absence of the water, and the dryness of the placenta, the fluid having passed into the abdominal cavity at the time of the rupture. The head of the fœtus being outside above, and the lower extremities and part of the womb being outside below, in the inverted vagina, accounts for the small size and great hardness of the uterus. The symmetrical form and immobility of the womb resulted from the same cause, the head being engaged immediately below the promontory of the sacrum, and so wedged in as to hold the womb in a fixed position.

What now remained to be done? I had my right hand in the uterus with my finger in the rupture. The uterus, having contracted slightly, had displaced the head from the concavity of the sacrum, and had thrust it back into the cavity of the abdomen. By depressing it from without with my left hand, I had no difficulty in bringing it in reach of my fingers. I seized it with my index finger in the floor of the mouth and my thumb pressing firmly below the jaw. During

my attempts thus to retract it, the uterus contracted to a considerable extent around my hand, and while using considerable force, I felt the jaw give way between my thumb and finger, at the synchondrosis. By this time my hand was so cramped as to be powerless, and I resorted to a well tried remedy, placing it in cold water for a few moments, before going further. Entering the womb again, and through it the abdominal cavity, my object was to catch hold of the head in such a manner as to render it impossible for it either to slip or give way. After several attempts, I succeeded in fixing my index finger in the frontal fontanelle above, and my thumb on the hard palate below, and then by exerting as much power as possible, by repeated rotory tractions, I succeeded in drawing the head into the womb, and from thence delivering it. Unless this delivery was accomplished, I was fully aware that the last resort would be to the Cæsarean section. Promptness was absolutely essential to the operation, for every moment the uterus, though ruptured, contracted more and more, and diminished the chances of delivery through it. Therefore I acted with the greatest promptness, though well aware that by too violent but unavoidable pressure upon the lacerated part of the uterus, the already great danger of inflammation and sloughing was much increased. This, however, I preferred to the Cæsarean operation, which, in my opinion, would have still more diminished the already small chances for recovery.

I abstain from giving a description of the course of the case during following five days, from the 4th to the 9th of June, on which day Mrs. V. died. Her disease presented no new features, and were those which usually occur in violent puerperal metritis and peritonitis. Besides the usual medication deemed necessary in such cases, several attempts were made to free the abdominal cavity of its foreign contents, by means of the introduction of a blunt silver tube, of about one-third of an inch in diameter. This proved of little service,

as only a small quantity of tar-like, viscid fluid, of intensely nauseous smell being passed.

I opened the abdominal cavity three hours after death, and found the ordinary conditions of metritis and peritonitis. Slight purulent exudation was found upon the bowels, and the smaller blood-vessels were in a state of inflammatory injection. In the abdominal cavity there was a small quantity of similar bloody, viscid fluid, to that removed by means of the tube. A large quantity of this fluid must have been reabsorbed during life, in the first three days after delivery, and perhaps before delivery, after the rupture occurred, when the vitality of the patient was but slightly diminished.

What astonished me at first sight was the fact that the rupture of the uterus, which appeared during delivery to be on the left side of the posterior aspect of the uterus, was now on the right side of the anterior face. There can be no doubt, therefore, from all the statements given before, that the womb must have been at the time of rupture, turned something more than 90° around its longitudinal axis. The head passing through on the right side of the womb, with the rushing of the amniotic fluid at the same time and in the same direction, must certainly have taken away its equilibrium and leaned it still more to the right side. The lady was also in the habit of relieving the pressure of the womb at times, by lifting it inside of the pelvic and abdominal cavities, and thereby giving it, all its ligaments being relaxed, a much greater mobility. Under this combination of circumstances, it becomes obvious, that the turning round on the longitudinal axis must have occurred.

I took segments from different parts of the womb for microscopical examination, but found in them only the physiological changes characteristic of the fifth week after delivery. The primitivel muscular fibrillæ were not yet quite reduced by the atrophic process, to their normal length of 0.03,''' and were in a high state of fatty degeneration, presenting no sign of pathological change.

Causes of Modern Changes in the Art of Prescribing—By Percy C. H. Rooney, M. D., of St. Louis.

One of the most wide spread of the popular errors created and fostered by the friends of homœopathy, is that which attributes to this pretentious system of quackery the comparatively diminished amount of medicine prescribed by regular physicians; and it far too frequently happens that medical men, tacitly or openly, acknowledge the truth of this assertion. Admitting the fact that less medicine in bulk is now administered than formerly, they see no other explanation than that so often alleged, which has now well nigh passed into a proverb. The admission of this statement is utterly false, and damaging to our profession. Homœopathy is entitled to as little credit for the improvement in our therapeutics as for the advancement of pathological or surgical science.

It is important that we should understand on what basis rests the actual changes in our present materia medica, that we may give a rational explanation, and not make improper concessions to quackery.

It should be understood that this new hypothesis was made at a peculiar period in the history of medicine, and one well adapted to give it popularity. About the time of its promulgation, a great change had taken place in the science of chemistry; especially in that branch which is termed pharmaceutical chemistry. The alkaloids, the active medicinal principles of remedies, were then just discovered, whereby a new impetus was given, not only to chemistry, but also to therapeutics. The oft reiterated query of centuries: "Can you not give your remedies in smaller bulk, and in a more agreeable form?" was about to be answered. It was apparent that the physician could give the same strength as formerly, in a smaller, in fact in a minute dose; and there was hope that eventually all medicines would be thus reduced. Where the older practitioner gave opium and bark in large bulk, the younger therapeutist gave the small and elegant preparations of morphine and quinine. The homœopaths very early finding

the utter inertness of the medicines they professed to give, surreptitiously administered these alkaloid principles which could be given in minute doses, and produced marked results.

A sect which had started upon a new hypothesis, presenting so many points of favor with the public, did not intend to lose these advantages by any concessions of the inability of their infinitesimals to produce marked and visible effects upon the systems of their patients. Where their infinitesimals did not succeed, the alkaloids, most frequently administered by their own hands in full doses, produced certain and marked results; thus positively presenting to the public a falsehood as a proof of their soundness and of these dogmas. This system of medication immediately gained favor with the delicate, the nervous and the fastidious. Many of the older practitioners, who had become routinists, did not attempt to investigate these causes of success, nor did they use the new remedies which science had presented to them, but continued to administer the old and nauseous ones, thus driving many of their best patients into the hands of the homœopaths. Many persons believing that there were no medicinal properties in these preparations, because tasteless, boasted to their old physicians of the minuteness of the dose which now affected them; not realizing that frequently in that small dose was concealed treble the medicinal power possessed by their former large doses.

Thus the assertion of the homœopaths, that they administered less medicine than the other physicians, and much less than was formerly given, was in fact a falsehood; for by calculating the amount of active principle given within a specified time, it was found to exceed the amount of the same principle contained in the crude material formerly used.

There can be no question that the innocent dupes of homœopathy are constantly dosed with powerful medicines, prostrating and debilitating their nervous systems, and making them perpetual patients. This fact cannot but be acknowledged by all, for it is well known that scarcely an hour elapses without

a dose of medicine is administered. In homœopathic families the habit of dosing becomes permanent, to the infinite injury of all the members, but especially to the young and susceptible. This practice tends to but one result, namely: constant minor ailments, involving prolonged medical attendance and large bills. It is a demonstrable fact that patients who have left their old medical attendants and placed themselves under the care of homœopaths, have experienced more sickness than formerly, and have quadrupled the amount of their bills. Though the number of alkaloids and active principles that have been discovered are numerous, they do not present sufficient remedies for all cases. Therefore, in some instances the whole medicinal substance, or plant, is still used by physicians. But this cannot be done by homœopaths, because they have promised the public minute and almost tasteless remedies. When, therefore, cases are presented to them that cannot be reached by these new remedies, the patient must and does suffer a longer and more dangerous sickness; if he recovers, his convalescence is tedious, with complications which might have been prevented at an early stage of the disease.

With the numerous fallacies of the system of homœopathy, I have nothing, at present, to offer. It was my purpose simply to answer the oft repeated assertion that homœopathy has taught regular physicians to use less medicine, and also to refute the error that homœopaths use less medicine than educated practitioners.

Briefly, then, we gladly acknowledge and rejoice that all educated physicians use medicines less in amount and more agreeable than formerly, but this result has been brought about by physiological investigations and pathological examinations. Theories have given place to facts, and improved methods of diagnosis teach clearly what we have to cure. A better understanding of therapeutics has taught us the application of remedies to the cause of disease, and improvement in chemistry has given us remedies of definite and certain power. A deeper and more profound study into the science of medicine

as a whole, has improved our knowledge in each of the various branches, and given us a greater knowledge of diagnosis, prognosis, and treatment of disease.

A CASE OF TRICHINIASIS.—Communicated by D. V. DEAN, M. D., Professor of Physiology, Histology and Medical Jurisprudence.

The 15th ultimo, I happened to be present for a few minutes, before the close of a post-mortem examination by Dr. LEFFINGWELL, of a City Hospital patient. There seemed to be nothing in the case to attract particular attention, and I was not noticing it. Dr. L. remarked, as he says he had done once or twice before, that the muscles were "finely specked." This drew my attention to the subject, and I saw the muscles completely studded with encysted trichinæ. Examining a portion of the muscle in a better light, with a pocket lense, I could distinctly see the perfect outlines of many of the cysts, which were readily rolled out upon the surface. Having to lecture, immediately after, at the Medical College, I described the entozoa to the class, and advised those members who could do so, to commence some systematic experiments upon animals with some of the fresh parasites. One of the members, who is also an assistant at the City Hospital, immediately commenced experimentation; with what success I do not know. At the close of the hour I set about getting a history of the case—saw the assistant who had charge of the ward in which the patient had been, and gathered so much of the history of the case as he was able at the time to give. I examined the tissues further under the microscope, and reported the matter at the regular meeting of the St. Louis Medical Society, November 16th, when I exhibited portions of the latissimus dorsi, and of the transversalis colli muscle, in which, on viewing them by transmitted light, all could plainly see with the naked eye myriads

of the chrysalides, appearing somewhat like the nits or ova of the common head-louse. Specimens in which the cysts and enclosed coiled filariæ.were visable were shown under the microscope by Dr. STEELE and myself, and pieces of the infested muscles were distributed to such as desired them. There was little peculiar in their microscopic appearance. Some were yet in the larval state, coiled, but not at all encysted; some surrounded by granular matter arranged in an oval form, and most in oval, or shuttle-shaped calcareous shells, which effervesced on the addition of the mineral acids. Frequently a cyst terminated abruptly near the oval at one extremity, the other being straight or curved, the whole cyst having a bottle-gourd shape. There were scarcely any fat globules around the extremeties. I found twenty-six cysts of various sizes between two fibres, filed almost in contact. In a cubic half-line ten were counted; they were present in all the striated muscles examined, but were much the most numerous in the thin muscles about the spine.

The patient was thought at the time to be one of two friends who came to the hospital together, both complaining of general debility; the other had lung complications and died earlier. This patient complained of abdominal pains, suffered from diarrhœa—scattering his dejections on his way to the water-closet—sweat profusely, found difficulty in speaking, was apathetic, and afterward stupid; in fact he was supposed to have typhoid fever. Œdema of face, legs &c., was not noticed. This is about all I could learn at the time from the assistant. He knew nothing of where the man, or men, came from; this is very desirable to know. I have not taken the pains I otherwise would to ascertain it, because it is understood that Dr. CLARK, Resident Physician at the City Hospital, hopes to be able to give a more complete history of the case.

I have written thus minutely of the detection and exhibition of the trichinæ for two respective purposes—the one to show those who are still skeptical, that they cannot always

ridicule or ignore the existence of trichiniasis as a formidable disease, when not one, only, but every one around them, sees what was first described by the few;—the other to call attention to the probability that the disease occurs more frequently than appears from reported cases. If Physicians in this country were at this time, or recently, treating an affection they had determined to be trichiniasis, we should hear of it. This patient, though of French descent, appears not to have been a recent immigrant; and it is highly improbable that he alone ate of the trichinous meat that caused his death. It was by mere accident that this case was detected; and considering that the disease was not known to exist any where in the United States at the time, that little was known of the patient, and that cholera and kindred complaints have been prevalent here, the strangeness would have been, not that trichiniasis was not, but that it was diagnosed. The physician, unless an expert in this disease, must have been much above ordinary men to have won any respect for his diagnosis. Otherwise he would have been set down, in common parlance, as having "trichinæ on the brain," and therefore finding what a more sensible man would not have looked for.

A Uterine Polypus with Nerves. By N. Charles Lorey.

A woman, 32 years old, was received at the City Hospital at Frankfort, in whom menstruation commenced in her 15th year and had always been copious; within the last four years she had given birth to two children with much loss of blood each time. Her menses had ceased two months previous to her being received at the hospital and for three weeks she had suffered from hemorrhage by which she was extremely exhausted. An internal exploration showed a spacious vagina, the uterus large and low down, the os externum open, its margins soft and flabby, a thick roundish

mass hard to the touch, was felt within the cavity of the vagina extending down from the os, and it was possible to follow it with the finger into the uterus, its origin however, could not be made out. In a single day she had lost so much blood as to come near dying; this caused Dr. Passavant to remove the polypus with Musseux's forceps, having previously put her under the influence of chloroform.

The polypus was roundish, of firm texture and with a base two or three centimeters in diameter situated upon the internal wall of the body of the uterus. It had no well developed pedicle. The extra-uterine portion, two centimeters in length and roundish at its extremity, was covered by a smooth uterine mucous membrane. A transverse section showed a red, fleshy and very vascular tissue. From microscopic examination it was found to consist of smooth muscular fibres regularly arranged in bundles with more or less connective tissue. The tumor was therefore a myoma.

In preparations taken from the surface numerous nervous fibres with double contour were found. In one of the preparations such a nervous fibre passed over in an oval well defined terminal body, (End-kolben.) This was somewhat larger and more pointed than the tactile bodies occurring in man, which indicated, perhaps, a distortion of a normal tactile body, by the development of the polypus. As usually occurs, the neurilema of the nervous fibre passed over in the sheath of the corpuscle, whereas the fibre, on entering into it, lost its double contour and could be followed a little farther as a pale terminal fibre. Doubtless the woman had carried the tumor for years, and it was the cause of the hemorrhage in the births and during the menstrual periods.—*Deutsche Klinik, No.* 21, 1867.

Translated from the original by Charles Heyer, M. D.

THE TISSUES.

FOURTH LECTURE ON PATHOLOGICAL ANATOMY. Delivered on the 6th of September, 1867, to the Medical Profession of St. Louis, by A. HAMMER, M. D., Prof. of Surgery, Ophthalmology and Pathological Anatomy in the Humboldt Medical College of St. Louis.

GENTLEMEN—

In our last lecture we commenced the consideration of the epithelial tissues and finished the description of one variety of them, the pavement epithelium. To-day we continue this subject and pass on to another variety of this structure, the cylindrie epithelium.

This appears both in single layers and in laminae, though it is never so laminated as the pavement epithelium. It lines the intestinal tube from the cardia of the stomach to the anus, and the ducts of all the glands opening into this tract. Also the ducts of the mammary glands, Cowpers glands, the male urethra and the seminal vesicles. The size and form of the cells of this tissue vary very much, the most common form, however, is that of an inverted cone of a certain size, another variety being of the same shape but much larger. Again, this cone may be elongated, the longitudinal diameter being much longer than the transverse. Again, the tapering of the cone may be much less marked, approaching, in form, to an ellipse. The last variety is found chiefly in the stomach.

The cylindric epithelium is either ciliated or non-ciliated. These cilia consist, as we have before mentioned, of certain hair-like processes on the free surface of the cell, which are endowed with independent motion.

We have already spoken of the secondary membrane upon the top of certain epithelial cells, which can be detached by certain chemical appliances. This membraue is pierced by minute holes through which the chyle passes in order to reach the interior of the cells.

The ciliated epithelium exists in comparatively few localities. It is found in the vas deferens, in the Fallopian tubes,

extending from the morsus diaboli into the uterus and half way into the cervix. It also lines the whole of the mucous membrane of the respiratory system, from the epiglottis to the most minute bronchi, excepting only the vocal chords. In the minute bronchi it exists as a single layer. It lines the lacrymal sac and lachrymal duct, the nasal cavity and its appendages, with the exception of the olfactory region.

The motions of the cilia are of four different kinds. 1st. The hook-like motion, resembling the flexion and extension of a finger. 2nd. The pendulous motion, like the movement of the pendulum of a clock. 3rd. The funnel motion, the attached extremities of the cilia remaining at rest, and the free extremities moving in a circular manner so as to present the appearance of a funnel, and 4th, the wave-like motion.

I might here add, that in the embryo the cavities of the brain and spinal marrow are also lined with ciliated epithelium, and in the adult these remain permanent in the aquæduct of Sylvius and in the lateral ventricles.

In the ciliated epithelium of the Eustachian tube and tympanic cavity there is a slight variation from the forms described, the cells approaching more closely in form to pavement epithelium and having cilia attached to them. Other varieties of the ciliated epithelium vary much more than this. One of these, lately discovered, and which has, as yet, been found only in the aquæduct of Sylvius, is the caudate form. This may be either ciliated or non-ciliated. It consists of a small cylindrical cell, with a prolongation terminating in a thread-like process which is connected with the connective tissue corpuscles below. Again, we find ciliated cells in the olfactory region, consisting of a shaft with a ciliated extremity, connecting with a cell which has also a caudate prolongation. In animals several of these cilia have been found on the shaft, in man a single short projection only, represents the cilia. This cell, however, is more properly a nervous element. In the olfactory region we again

find other varieties of epithelial non-ciliated cells very similar to the candate epithelial cells already described.

These are all varieties of cylindric epithelium. The nature of the candate cylindric epithelial cells was first discovered by Gerlach of Erlangen.

The chemical composition of the epithelial tissue agrees with what we have already stated in general terms. The old layers of epithelial cells contain keratine, which is allied to the horny tissue. The cylindric and ciliated epithelial cells are supposed to contain mucin.

Caustic Potash and Soda are the best chemical tests for all the varieties of epithelial structure, for, though they may differ very much in appearance, on the addition of one of these agents they will swell up, and the nuclei will appear, presenting the characteristic appearance.

Here, I may remark, that all epithelial tissues are closely allied to the cells which line the glands. In both we meet with a basement structure. There is always a continuity between the cells of mucous glands and the epithelial structure lining the surface, through the epithelial cells lining the ducts of these glands. Again, there are eertain localities in which we meet with different secretions, where there are no glands present. The synovial fluid is secreted by the epithelial cells lining the synovial membrane, the contents of the cells being so much transformed as to give rise to this peculiar secretion. The mucous secretion, also, does not always arise from mucous glands. For instance, we know of the abundant secretion of mucus by the conjunctiva of the eye. In this membrane there are only 10 or 12 small mucous glands. The secretion comes principally from the epithelial structure, and on this, principally, the eye is dependent for its lubricating material. These examples show the closest alliance between the two structures.

Now what is the function of the epithelial tissues? It is the regulator of endosmosis and exosmosis, of transudation, diffusion and absorption. The epidermis, for instance, is very

permeable to gases, scarcely so to water and solutions of salts. Again, we know that these tissues are sometimes active in the secretion of mucus and synovia. They are also thought to exercise a protective power against the contact of hurtful foreign bodies, as they cover the extremities of the fine vessels and nerves. This, however, cannot be their chief function, as formerly supposed, for the intestinal tract, which is the most exposed of all the regions to the influence of these agents, is protected by only a single layer of epithelial structure. Another function which has been attributed to these tissues, is that of preserving the caloric of the body, they being bad conductors of heat.

How are these tissues developed? All tissues and organs emanate from embryonic cells. These consist, as before mentioned, of three layers. The cells of the exterior or horny layer give rise to the epidermic tissue, to all the glands that open upon its surface and even to some organs which are concealed within cavities, as, for instance, the crystalline lens. All the epithelial structures in the intestinal tract are developed from the inner layer of embryonic cells. All glands opening on mucous membranes are also developed from the inner layer. All other epithelial structures, lining serous cavities and the inside of joints are generated differently, not arising from either of the above sources.

Having thus considered the epithelial tissues proper, we will now pass on to an important modification of this structure,

THE CRYSTALLINE LENS: The origin of this was first demonstrated by Carl Vogt. However different the appearance of the lenticular elements may seem, these are only a transformation of the pavement epithelium. The lens is a double convex body, more convex posteriorly than anteriorly, kept in position by a sac (capsule) which closely surrounds it, the anterior half of which is lined on its concave surface by epithelial cells. The lens is made up of very long tubes which were formerly considered to be solid. If you examine

one of these tubes carefully you will observe that it is narrow at the centre and wider at each extremity. If a transverse section of one of them is made, we find that it is hexagonal, hollow in the centre, and filled with an albuminous, viscid, transparent fluid called crystalline. These tubes are parallel and fit closely into each other, each one being in close contact with six others. This arrangement holds good in the periphery, but in the center of the lens, where the tubes are much narrower, they seem to be more solid, constituting fibres. This organ is suspended in such a manner in the cavity of the eye-ball, as to be entirely destitute of blood-vessels, nerves or lymphatics, being only accessible to endosmosis and exosmosis. The process of nutrition is kept up through the permeability of the capsule to fluid substances. But we know that nutrition and disintegration are invariably coincident. How then is the integrity of the organ preserved? This is accomplished through the layer of epidermic cells which lines the concave surface of the anterior capsule. These cells form the new tubes and supply the loss by disintegration. If, by an operation, a part of the lens is destroyed, by these cells the lens may be regenerated, if the capsule remains to some extent intact. This fact I have myself observed in practice.

In the new-born child, on the anterior sarface of the lens a space may be observed which is destitute of crystalline tubes. This space is represented by a perpendicular line, dividing at the lower extremity into two other lines diverging from each other at an angle of 120°. On the posterior surface there is a similar deficiency, this space being represented by the same lines reversed. Every lenticular tube oversteps the great periphery, but none follow such a course as to unite the anterior with the posterior pole of the lens. The cellular nature of the tubes is evident by the persisting nucleus contained in each.

I intended to say only so much in regard to the lens, as a derivative of the epithelial tissue.

We will now pass on to the consideration of the nail, but before doing so, it will be proper to give a brief description of the component elements of a kindred tissue,

THE SKIN. This consists of three layers. 1st. The epidermis. 2nd. The corium proper, and 3rd, The sub-cutaneous cellular or adipose tissue. The first layer, the epidermis, is sub-divided into two layers, the epedermoid layer and the rete mucosum. There is no actual difference between these two layers, except that which is caused by age, the epidermoid layer being older, dryer, and having lost its nuclei by desication. We have under this the corium proper, composed principally of connective tissue, containing within it very marked elements called papillæ. These papillæ present the appearance of little hills, having valleys between, projecting into the rete mucosum above. These are composed externally of connective tissue and generally contain within themselves certain nervous elements, roundish, oblong, very peculiar in appearance, and called tactile bodies. Those papillæ which contain no tactile body are furnished with blood-vessels. The valleys between the papillæ are filled with the rete-mucusum. The third layer of the skin consists merely of loose connective tissue, in which we generally find an abundant accumulation of fat, and a number of sudoriparous glands opening on the surface by long ducts which pierce the layers above. The sebaceous glands and the hair follicles, likewise project down into the third layer and generally open on the surface by a common duct.

Having thus given roughly the component elements of the skin, we pass on to a modification of this structure:

THE NAIL. The substance of the nail proper is nothing but the epidermic layer of the skin transformed in a peculiar manner. If a perpendicular section of the nail and parts beneath is made, we find, first, an apparently uniform and structureless substance, corresponding to the epidermoid layer. When we examine it under the microscope we discover little notches on its under surface. It is made up of the same

epidermoid cells which compose this layer in the skin, with this difference, that while in the skin the nuclei in this part have disappeared, in the nail they are readily reproduced by the addition of sulphuric acid.

Beneath this is the rete-mucosum, the matrix or bed of the nail, consisting of young cells from which the nail is developed. What do we find beneath this? Again, those same little papillæ with tactile bodies which were before described, the corium. These papillæ are arranged in ridges from behind forwards, the rete-mucosum being inserted between them. Beneath this, again, is the subcutaneous cellular tissue before described.

The nail is of an ovoid quadrilateral form, thin behind and thicker in front. The ridges run longitudinally from behind forwards except at the posterior end, where they are more densely crowded, showing a convex line which shines through the nail and constitutes the lunula of the nail. The nail grows from behind forwards, in consequence of the greater activity of the rete-mucosum posteriorly. It also grows in thickness, in consequence of additions from the rete-mucosum beneath, constituting the nail bed.

As long as these ridges, the corium proper, but called here the matrix or bed of the nail, are intact, a new nail can be formed. The truth of this statement I have experienced in my own body.

Thus you see how almost identical is this strange structure with the skin.

Kölliker has ascertained that nearly all of the diseases, malformations, irregularities of growth, &c., of the nail, are dependent upon fatty degeneration of the capillaries of the matrix.

Another very complex tissue, closely allied to the skin in formation is

THE HAIR. This tissue is a somewhat complicated one, though composed entirely of the modified elements of the skin.

The hairs are filiform in structure and consist of root, shaft

and apex, the shaft being above and the root under the skin. The root is lodged in a sac, which contains an oval shaped projection underneath, fitting into a corresponding cavity of the hair bulb. This is the papilla of the hair. In the shaft of the hair we find two distinct parts, the cortical substance and the medullary substance or hair contents. The shaft is a tube, not exactly hollow, but filled with a certain medullary substance. This substance consists of a multitude of cells, constituting the marrow of the hair.

The cortical substance is also made up of cells, which, in the neighborhood of the bulb and papilla present the appearance of nucleated cells, but as they ascend the hair they change their nature, the cells become irregular and elongated, and their nuclei either disappear altogether, or present a linear appearance, and the cells approach in form to those of scaly apithelium. By the drying and contraction of these cells spaces are left between them, which are now known to be filled with air, but were formerly supposed to contain fat.

In regard to the marrow of the hair, this is composed of regular shaped cells, but these also become dry and shriveled above and present the appearance of scaly epithelium. Spaces containing air are also formed here, but not exactly as in the cortical substance for the spaces are within the cells themselves, and the air can be withdrawn by proper chemical appliances, on the removal of which it will again return.

The papilla of the hair is a part of the sac, and continuous with the corium of the skin, from which it is developed, as will be hereafter seen. This sac has a certain degree of thickness, and consists of fibrous tissue with smooth, muscular fibres on its outer surface. It is owing to these muscular fibres that the hair may be erected. The sac is lined on the inside by a transparent, colorless membrane. Now there is still undescribed a considerable space between this membrane and the root of the hair. This is filled up by a number of membranous layers. The one next to the membrane of the sac is called the external sheath of the

hair bulb. The next layer, internal to this, is called the internal sheath of the hair bulb. This is again composed of two layers consisting of different kinds of cells. The outer layer is called Henle's layer and the inner one Huxley's layer.

There is still a small space left between this last layer and the cortical substance of the hair. This is filled up by another double layer of cells constituting a very thin membrane. The two layers of this membrane remain closely connected with each other until they reach the surface of the skin, where they divide, the external layer becoming continuous with the epidermis of the skin, and the internal one continuing in contact with the cortical substance of the hair. This layer constitutes the epidermis of the hair. It is composed of squamous pavement epithelium, containing no nuclei, the cells overlapping each other like the scales of a fish, giving a transverse striated appearance to the surface of the hair, which striae, under the microscope, appear to project from the surface of the hair.

In the lower part of the bulb and marrow of the hair we find pigment granules present. The color of the hair, therefore, resides in the cellular elements of the bulb and cortical substance.

Some hair, as lanugo, and also some on the scalp of the adult, contain no marrow.

Here we may remark that the sac of the hair corresponds to the corium of the skin, the external and internal sheaths of the hair bulb represent the rete mucosum and the two internal layers, which split on the surface of the skin, represent the epidermoid layer. The papillae, which are formed of fibrous tissue and bloodvessels, and which are the same papillae before described in connection with the skin, are called the matrix of the hair, being its nutrient agent and its regenerator when it is lost.

In regard to the chemical composition of the hair, we find in it Keratine, and it may therefore be classed with

the horny tissues. The hair is also rich in sulphur. It is an elastic tissue, and has a strong affinity for water.

The development of the hair is similar to that of the sudoriparous glands. We have first the depression and inversion of the skin as in the development of the glands, and it is only in the after stages of its development that any difference occurs.

The regeneration of the hair depends, as we have said before, upon the papilla. When the hair shrinks and falls out of its sac, we find at the side of the bulb and deeper down in the cutis, the formation of a papilla and on this a hair bulb, being enclosed in the same sac with the old hair. From this bulb the new hair, is developed, the old hair at the same time shrinking and disappearing, and the new one growing beneath and by its side, this closely resembling the process of the second dentition.

We have said so much concerning the nature and structure of the hair, principally for the purpose of showing its intimate relation to the skin, and in order to prove that it is a mere derivative of that tissue.

We now come to another and a more important tissue, that of

CARTILAGE. This belongs to the second class of the order which we have adopted, that of connective tissue.

Histologists have differed much in regard to the classification of the different varieties of cartilage. Some have classified them from their position, into articular and membranous cartilage, the first being connected with the joints of the body and the second being found in the larynx and other similar structures. Again they have been classified, on the basis of duration, into transient and permanent cartilage. The third, and in our opinion, the best classification is on the basis of histological composition into 1st., Hyaline; 2d., Elastic, and 3d., Fibro-membranous.

We may remark that the difference in structure of these three varieties consists only in the difference of the inter-cellular substance, the cells of each class being identical.

Notwithstanding this variety, they are all, at one period of life, the same, all being first hyaline, the inter-cellular substance being a somewhat transparent, slightly granular fluid, in which it is difficult to detect any structure. We may say further, that in the first growth of every cartilage the intercellular substance is scanty, and only by further development does this assume the appearance characteristic of its variety. We now observe certain changes going on in the development of cartilage. We have already said that all tissues are developed primarily from embryonic cells. These, in the case of cartilage, are, at first, spherical, vesicular, and transparent, containing a nucleus, and having only one cell membrane. We have already stated in a previous lecture that cartilage-cells differ from all others in possessing a secondary cell-membrane, but this only appears in further development, being formed by the primary cell wall.

As a second change we observe a proliferation of the cells, chiefly by endogenous generation, by which, in a single cell, a number of others are formed. This proliferation, however, may already take place in very young cells, which do not yet possess a well marked secondary membrane.

For a certain purpose, *i. e.*, in the process of ossification from hyaline cartilage in the embryo, of which we shall say more on a future occasion, a change takes place in the embryonic cartilage cells, so that the proliferation terminates in generating round granular cells, similar to the granulations of a wound and like those found in the marrow of bone. These are called granulation, medullary, or narrow-cells. This is a point of very great importance, for these cells may now be developed into either osseous cells, fat, nerve or blood-vessel. This is an important discovery to which we shall again refer, for it shows the intimate relation existing between all the different varieties of connective tissue. It is also very important in practice, particularly in regard to the healing of fractures of bone.

Let us now see where these different varieties of cartilaginous tissue appear:

The hyaline cartilage is found in the primordial skeleton: in the spine, ribs, pelvis, and all the other bones with the exception of the clavicle. It also appears in a large number of the skull-bones. These all become in course of time transformed into bone. In the nose, larynx and in the articulations of joints the cartilage-tissue remains persistant.

Next we have the elastic cartilage. This may be readily distinguished from the hyaline variety, which has a whitish color, but if the cells are in laminæ shows a blueish tint, while the elastic cartilage has a yellowish appearance and shows the characteristic reaction of elastic tissue. This formation appears in but few regions, as in the epiglottis, in the Wrisbergian cartilages, in the external part of the Eustachian tube, and also in the arytenoid cartilages, which, however, are also partly composed of hyaline cartilage. It also appears in the inter-vertebrate cartilages.

The third division is that of fibro-membranous cartilage. This formation may be considered as either hyaline cartilage in which the intercellular substance is so much changed as to have become fibrillated, or it may be considered as fibro-cellular tissue of a soft consistence, in which a few cartilage cells are imbedded.

I have already told you that all cartilaginous structure is at first hyaline—therefore the different varieties of cartilage are formed by changes in the intercellular substance. The intercellular substance of the elastic cartilagenous tissue consists of strong, well marked, dark colored fibres, interlaced into each other in every direction, constituting a net-work. In this net-work are groups of cartilage cells, several lying together. In hyaline cartilage, as we have said before, this intercellular substance is nearly homogeneous, containing cartilage cells. In the third variety of cartilage, we have these differences, that there are fewer cells, they are more scattered, and the entire intercellular substance has the appearance of

being fibrillated, but only in one direction. Therefore, as we before mentioned, it may be considered as either at first fibrous tissue, in which cartilage cells have been formed, or as cartilaginous tissue which has become fibrillated. This tissue has a whitish appearance, with sometimes a yellowish shade, and has this remarkable peculiarity, that while the other cartilaginous tissues do not contain blood-vessels this variety does. It is found in the tarsal cartilage of the upper and lower lid. There is one organ in which all three varieties of cartilage are found, this is the ligamenta inter-vertebralia. The entire surface of the vertebræ is covered by a thin layer of hyaline cartilage, and extending between the vertebræ we have the elastic and fibro-membranous mixed.

These three varieties of cartilage are significant of one fact and prove conclusively that Beales dogma of "dead formed material" will not hold good, for here we have three varieties of intercellular substance, in which the cells are identical, and yet the intercellular substance of each totally different from the others. This shows that the changes in the intercellular substance takes place independent of cell action.

In regard to the chemical composition of these tissues, we may say only a few words. The cells offer a strong resistance to chemical re-agents, showing their elastic character. The intercellular substance of hyaline cartilage, after long boiling yields chondrin. This is also true, in a much less degree, of the elastic variety. By boiling the fibro-membranous variety we obtain glutin, a substance differing from chondrin. You will recollect that we have said that the whole skeleton with the exception of a few parts is at first composed of cartilage. This by boiling yields chondrin. If we expose a bone to the action of muriatic acid, we obtain a homogeneous, yellowish, transparent substance, which by boiling produces glutin. This shows that this substance is not any more cartilage, but only a form of connective tissues having become changed so during the process of ossification.

In the cartilage of adults we observe, in time, changes taking

place. One of the most frequent of these is the appearance of fat in the cartilage cells. This, though not normal, does not seem to alter the function of the cell. In the cartilages of the ribs, fat is almost always present. Again, we may have softening, which is physiological when occurring before ossification, but may also take place under other circumstances. Petrifaction may also occur. Cartilages may also become abnormally ossified.

All cartilages, excepting those forming the articulating surfaces of joints, are covered by a fibrous membrane, the perichondrium, not so thick or voluminous as the periosteum, but otherwise similar. This membrane contains the blood-vessels from which the cartilage is nourished.

The regeneration of cartilage *never* occurs through the original tissue, but only through fibrous tissue, which is lower in grade than cartilage.

This is all that we shall say for the present in regard to this tissue.

EDITORIAL.

VALEDICTORY.—DR. LINTON AND GYNÆCOLOGY.

From certain circumstances beyond my control, which render other duties more imperative, I have withdrawn from the Editorial Department of the HUMBOLDT MEDICAL ARCHIVES. To such of my friends who gave their encouragement to this enterprise on account of myself, I cordially recommend my successors, knowing full well that they will keep up the high scientific standard, to which the original Editors pledged themselves.

In resigning my labors here, I must say that I do so with no little regret, yet it is a great pleasure to feel, that the "ARCHIVES" will suffer no loss, and that the able management which has undertaken the task of conduct will more than fill my place.

A parting word about Dr. LINTON'S vituperative attack on me in the ST. LOUIS MEDICAL AND SURGICAL JOURNAL, concerning Gynæcology.

DR. LINTON has thought proper to descend from the fair and square logic of reason, to the casuistry so peculiar to him, and to an absurd ridicule unworthy a man of science. I will never forget that a discussion among physicians, should be honest and truthful. I hope never to forget what is becoming a gentleman and a Physician, hence with me, on this subject, the rule will be, that when silence is golden, speech becomes silver-washed brass.

I have too much respect for Dr. LINTON to further cause him to appear absurd. Whenever he will show from experience that it is better not to operate on the uterus, then will I abandon what experience has taught me to be correct.

I have a firm faith in Dr. LINTON'S ultimate justice, and hope to see him admit that he theorized against facts.

I leave him to his "cogitations and vaticinations," hoping that he will not outlive his reputation, and that when he scientifically dies it may be of a rose in aromatic pain, and not with the stertorous laborings of apoplectic Poloniusisms.

MONTROSE A. PALLEN, M. D.

SALUTATORY.

In assuming the Editorial Chair vacated by Dr. PALLEN, we can but say to the friends and patrons of the "ARCHIVES," that neither labor, nor effort, shall be spared on our part, to sustain the established reputation of the Journal, and make it, if possible, more worthy the liberal support and encouragement of the profession. Our exchanges embrace nearly all the leading Medical Journals of the country, and many from abroad, and it will be our constant endeavor—in addition to the usual amount of original matter—to give to our readers a résumé, of all that is new or interesting in medicine, both at home and abroad, and our pages shall always be open to a liberal discussion, of all that pertains to the interests of the profession. Individually, we have no personal motives to subserve; our object shall be the advancement of Medical Science, and the promotion of the honor and dignity of the profession, and we shall at all times boldly and independently advocate, whatever we may conceive these interests to demand.

These being our principles and purposes, it will be our aim and desire, to merit and receive, both a continuance and increase, of the liberal patronage which the "ARCHIVES" have already received.

J. C. WHITEHILL, M. D.

MEDICAL REFORM IN THE STATE OF MISSOURI.

We call the attention of our readers to the transactions contained in this number, of the Missouri State Medical Association, at their late meeting in this city. We greet the steps taken by that body, as a telling sign of progress, and hope that great good may result from this movement, in the right direction.

We feel a little proud that our senior editor, was one of the chief movers in this matter, and need hardly say therefore, that we fully endorse the movement, and will labor assiduously for the consummation of the object aimed at.

It must be obvious to every one, that Medical Education in the United States is far behind the demands of the age. Every attempt thus far, at reform, has met with insurmountable obstacles, and unfortunately this is but too largely attributable to the want of sympathy, if not positive discouragement on the part of our Medical Schools. The result of the call for a Teachers' Convention, to be held in Cincinnati, in May last, is a direct proof of our assertion. Out of about one hundred schools, but twenty were represented in the Convention. These twenty, willing to initiate the so much needed reform, will be powerless to do so, unless the other schools will obligate themselves to do the same, and this, we fear, some of them at least, will refuse to do. The only plan then, is to attack the evil at the root, and render every school powerless for evil, by ignoring the value hitherto attached to diplomas, and making positive scientific knowledge, the standard of qualification for the practice of medicine. To this end, our only reliance must be upon a sound legislation. We hope that the Legislature of Missouri may be induced to enact a law, which will hereafter compel every one who desires to engage in the practice of medicine, to pass before a properly organized State board, a rigid examination on all branches of medicine and the collateral sciences, with the exception of Therapeutics. We say intentionally "with the exception of Therapeutics." This will

show that we are not making war upon any particular denomination or system, or attempting to crush any particular *ism* or *pathy*. All the *isms* and *pathies*, are entirely harmless, provided their representatives are thoroughly educated, scientific men. What we desire to effect is the elevation of the standard of Medical Education. We entertain the flattering hope that the enactment of a law, exacting a thorough scientific medical education of every physician, will achieve more toward the suppression of quackery, than speeches and crusades against *isms* and *pathies* can ever do. We sincerely hope that the Medical Profession in other States will follow the example set by the physicians of Missouri, and that by a combined effort, the great end may be accomplished of suppressing the great foster-mother of quackery—the wholesale manufacture of doctors, by a quick, cheap and easy method, as is now being done under the present system of Medical Education. What we most want, and what the interest of humanity demands, is an elevation of the standard of medical education.

Our Journal will be one of the organs for the furtherance of the "great and good cause," and we trust that ere long, we will be but one of a large and goodly company.

AN APOLOGY.

Partly on account of matters pertaining to the change in our editorial department, and beyond our control, and partly to enable us to lay before our readers the transactions of the late meeting of the State Medical Association, there has been an unavoidable delay in the issue of this number. For the future, subscribers may look for the "ARCHIVES" promptly, at the proper time.

TO OUR SUBSCRIBERS.

Material support is essential to the success of any enterprise. We would feel obliged to those of our subscribers, who have not already done so, if they would send us the amount of their subscriptions without delay. The amount is small to each one, but in the aggregate amounts to considerable to us. We would also feel thankful if each subscriber could send us one or more new ones, with which to commence the new year. As an extra inducement we will send four copies to one post office address, for one year, upon receipt of ten dollars. Back numbers will be furnished if desired.

LIFE INSURANCE.

We are pleased to see that the subject of Life Insurance, seems to be growing rapidly in popular favor. Certainly there can be no safer investment, in which business men, capitalists and all classes of men, can satisfactorily and surely provide for their families, against the contingencies of the future, as by securing a policy in some reliable Life Insurance Company. Persons desiring to insure in a home company, will find none better than the St. Louis Mutual. We know personally that its officers and directors are some of the most prominent and reliable, business and professional gentlemen of our city.

PROCEEDINGS OF THE MISSOURI STATE MEDICAL ASSOCIATION.

At a meeting of the St. Louis Medical Society, held on the 26th day of October, last, a committee was appointed, to invite the Medical profession of the State of Missouri, to assemble in Convention, in the City of St. Louis, on the second Tuesday of December 1867, at 12 M. for the purpose of re-organizing a State Medical Association, and to take some steps, toward securing the passage of an act, by the Missouri

Legislature, having for its object, the future suppression of knavery and quackery in the profession. Also, to consider the propriety, of asking the appointment of a State Board of Medical Examiners, before whom all persons desiring to practice medicine in the State, shall be compelled to pass a satisfactory examination, before they can recieve the necessary license.

In pursuance of a call from this committee, the Convention assembled in the Philharmonic Hall at 12 M., on December 10th. The profession was well represented from the different portions of the State. On motion, Dr. P. A. Heitz of Palmyra, was appointed temporary Chairman, and Dr. J. F. Prewitt of St. Louis, temporary Secretary.

Dr. M. A. Pallen, Chairman of the Committee of Arrangements, then delivered an eloquent address, welcoming the members of the Association, and setting forth the objects of the meeting. He also called attention to the opposition we were liable to meet with, both from the laity and from the press, in inaugurating movements of this kind. He also referred to the nobility of our calling, and the true heroism displayed by the profession, when pestilence stalks through the land and desolates our hearthstones: and in conclusion said,

"Should you, gentlemen, deem it proper to present a memorial to the State Legislature, let it be such as will clearly point out the only protection we want in such as will not make us responsible for quackery; we ask nothing more for ourselves, all else is demanded for the unfortunate sick. Let the physician, whose duty it is to soothe and to heal, inveigh against the ignorance of this pseudo enlightened age, and never yield one inch of ground as long as the contest lasts. Let us fight on, until the sun goes down over a victorious field. We insist that we are a powerful community among ourselves, who have never stooped to ask protection in one single instance, as far as regards pecuniary emolument; and we farther insist that our calling has something more than the rewards of gold and silver. Let us demonstrate that we, like Fulton, can dispense with winds and sails in navigating the adverse currents strongly setting against us. We, too, have a motive power to propel us against all tides and flows, in the mighty engine of truth. We need no incantations, or hieroglyphics, or weird lights, or cabalistic arcana; they are of the past. We open wide the hitherto impenetrable veil, and ask no favors which do not belong to us, and which are not the handmaidens of science, and the votaries of justice."

On motion of Dr. Dudley, the Convention now resolved itself into the State Medical Association, and a committee of five, consisting of Drs. Dudley, Green, J. R. Washington, Watters and Clemens, was appointed on permanent organization.

The Association then adjourned to meet at 4 P. M.

AFTERNOON SESSION.

The Association being called to order by the temporary chairman, the Committee on permanent organization reported a constitution.

[Owing to the crowded condition of our columns, we are compelled to defer the publication of the constitution until our next issue.]

On motion of Dr. Pallen, the Constitution as reported was unanimously adopted. After which the following officers were elected for the ensuing term.

President—G. A. Williams, of Booneville.

Vice Presidents—P. A. Heitz, of Palmyra; J. H. Watters, of St. Louis; J. B. Johnson, St. Louis; A. Hammar, St. Louis; J. F. Barbour, New Madrid.

Recording Secretaries—T. F. Prewitt and J. W. Clemens, both of St. Louis.

Corresponding Secretary—W. B. Outten, of St. Louis.

Treasurer—Thos. Kennard, of St. Louis.

Dr. Williams, on taking the chair, said:

Gentlemen of the Association. I give you my earnest thanks for the honor conferred on me by making me your president. From my total inexperience in such a position, and my very imperfect acquaintance with parliamentary rules, I greatly fear that I shall not be competent to fulfill the duties to your satisfaction. It is therefore with very great diffidence that I accept the trust; but as it is your wish, I will say no more than to crave your indulgence for any errors I may commit, and to say that I will do the best that I can. I assure you that the reading of my name was the very first intimation that I had, that, such an honor would be conferred upon me. If it had been otherwise, I would have endeavored to have read some remarks appropriate to the occasion. I will now say no more than this, that the purposes for which this Association has been formed meet with my most hearty approval, and I hope that your labors will result in the utmost benefit to the medical profession of the State of Missouri. Gentlemen, I suppose the Association is now ready for business. [Applause].

The Chairman of the Committee on Arrangements reported that he had received many letters from physicians and medical societies throughout the State, heartily sympathizing with and endorsing this movement, giving very briefly the substance of the same.

A Committee on credentials, consisting of Drs. Briggs, Kennard, Coleman, J. J. McDowell, Gibson, Noell, and Chesney, was appointed to examine and report on the names registered as members of the Association.

The following communication from the St. Louis Medical Society was now received and read.

To the Medical Association of the State of Missouri:

GENTLEMEN: The undersigned, a committee appointed by the St. Louis Medical Society, respectfully beg leave to submit the following for your immediate consideration and action thereon:

Whereas, It is the paramount duty of every well organized government, to enact such laws and regulations as will best secure and protect the natural rights of every member of society; and

Whereas, It is obvious to all, that a great number of imposters throughout the State, under the guise of physicians, *with* and *without* diplomas,

deceive and rob the credulous, sick and unfortunate, not only of money and health, but even life itself;

Therefore, we beg leave, respectfully to suggest, that on the part of this Association a memorial be presented to the Legislature of the State of Missouri, requesting that body to enact a law to the following effect:

1. That *hereafter* each and every person, midwives included, before being permitted to engage in the practice of medicine in any of its branches in the State of Missouri, shall be required to give ample and satisfactory evidence of qualification before a board of medical examiners, to be appointed every four years by the Medical Association of the State of Missouri, subject to the approval of the Governor, and to be located in the city of St. Louis. The board to consist of five members, whose duty it shall be to examine carefully and rigorously every one applying for examination, and if found worthy and competent, to grant a certificate to the same.

2. That persons applying for examination may have the privilege of using either the German or French language, instead of the English, in undergoing their examination.

3. That any person violating this enactment shall *not* be permitted to collect any fee by law, and shall be fined \$—— for each and every offense, and suffer imprisonment until such fine be paid.

Respectfully,
A. HAMMER, M. D.,
Chairman of the Committee.
M. MARTIN, M. D.
M. L. LINTON, M. D.
S. J. NEWMAN, M. D.

On motion the communication was received and made the subject of discussion for the evening session.

The Association then adjourned to meet at 7½ P. M.

EVENING SESSION.

The Association being called to order, the communication from the St. Louis Medical Society, which had been made the special order of discussion, was then taken up.

Dr. Pallen. To elicit discussion on the question, I would state my views, and why I am in favor of such a bill. It is a well known fact, sir, that the profession of medicine, particularly in the State of Missouri, and generally throughout the country, has received less attention than any other profession from the public at large. I have in my pocket, sir, letters from all sections of the State, urging that this Association take upon itself some action whereby they may represent to the Legislature, through a bill, its wants. We want no protection, sir, for ourselves. We certainly do want protection for the people.

We may travel the length and breadth of St. Louis, and even the State of Missouri, and we will find that there are all manners and forms of practitioners of medicine, and we come to examine these men in the simplest qualifications, not only for physicians but simply as educated men, and they are decidedly ignorant of all the primary branches of education, much less the ordinary branches of medicine. We may inquire of these men the simplest points of anatomy, physiology, pathology, obstetrics and chemistry, and we will find them wofully ignorant; that they exercise a certain influence in their respective sections, and exercising this influence they do it to the derogation of the dignity of the practice of medicine, and to the harm of their patients.

We find, sir, that there are in the State of Missouri, somewhere in the neighborhood of 4,000 or 5,000 practitioners of medicine. One gentleman

writes me from the Southwest that there are no graduates in the practice of medicine, except himself, in his county. Now, is it presumable for a single instant that men can take upon themselves the onerous duties—the arduous task of ministering to the sick without some preliminary education, not only with regard to the ordinary branches, but with regard to the necessary qualifications to practice medicine?

Those of us who are in the habit of receiving such letters from various sections of the State and in the city from numerous medical men, see that they are wofully ignorant. We cannot correct this. We cannot take upon ourselves any retrospective action, but we can prevent the people hereafter from having imposed upon them every known manner of robbery, knavery and absurdity that men choose to exercise. I know it will be argued, and I expect that the arguments that will be used against this question will be, that if we put this matter in the hands of the Legislature, that the Legislature will do nothing; that it is frequently composed of cross-road politicians and all that. Admitting it, it is no reason why we should not take upon ourselves certain duties in order to clear ourselves of the acts of those who have made us the subject of ridicule and satire.

There is not a lawyer who practices in the courts but who has to pass a certain examination before he is admitted to practice. The carpenter does not attempt to build a house unless he has passed a certain graduation of education. The people expect and demand it. But yet daily do the people of the State, of necessity receive ministration from the hands of men who are totally incompetent to give that ministration, and for these reasons I consider it our duty, if we can, to prevent these evils in the future if we cannot correct them now.

I do not urge this against all forms of quackery under the ordinary term of quackery. I do not urge it against every peculiarity of the isms with which medicine is tainted. I simply urge it to purge the profession from the foul stains that rest upon it, and which have rested too long upon the dignity of our profession, because we have not had the courage to face the music.

We desire simply this. that hereafter no man shall be permitted to practice medicine in the State of Missouri without the requisite scientific attainments which, based on common sense, will protect the people from the results of quackery. If we cannot get such a bill passed at present, let us continue our efforts until we do impress the community with the fact we need protection, not so much for ourselves as for the unfortunate sick, who are necessarily ignorant of the qualifications of any man who may choose to pay $10 license and practice medicine in the State of Missouri.

Dr. A. Hammer remarked that the resolution in question passed the committee unanimously; that the committee were all men of middle age, none in practice for less than twenty-five years, and hence the matter was not hastily considered, but had a fair, calm consideration. Though many have been killed in spite of knowledge, many more have been killed for want of knowledge; that it was the duty of every government to give protection to its citizens; in this movement the medical profession is not seeking for protection for itself; if it were so he would be the last man to favor it; we seek the safety of the public, and the dignity of the profession. He claimed that the Board of examiners sought for should pass upon the qualification of the applicant in the branches of anatomy, physiology, toxicology, chemistry, surgery and obstetrics; he cared but little about therapeutics. He disclaimed the charge that this was a war against homeopathy; it was beneath him to make war on any body, and he wished to clear the medical profession from any such reproach; he simply desired that the medical profession should be composed of scientific men, no matter what name they bear.

The Doctor concluded his remarks with a severe criticism of an article upon this topic in a recent number of the St. Louis *Medical Reporter.*

Dr. J. H. Watters. Mr President: I cannot help from saying something. It were probably better I were not to speak. It has been decided by the profession of St. Louis that I am a member of a scientific body, but I am not a citizen of the State of Missouri; and there is a distinction between science and a citizen, and that distinction has been recognized by the profession of St. Louis—distinctions between a man as a scientific man, and as a citizen. He may have violated the laws as a citizen, and yet he may have been a very scientific man or not, as the case may be. I have my feelings, but I say but little usually. I am a man that, conscientiously, to my own belief, obey the laws—conscientiously, to my own belief, obey the laws as I have them—but it does not seem to me individually right that I should petition a body of men to enact laws, for whom I have no right to vote. That is my own feeling.

Dr. Hammer. I believe the gentleman is out of order. I believe it is not pertaining to the subject under discussion.

President Williams. I deem the gentleman in order.

Dr. Watters. I meant to make the distinction between the medical man as a man of science, and as a citizen. I do not stand here or anywhere else deploring my position as a citizen; it is not that, but the distinction is universally recognized between the citizen and the scientific man—that is what I mean.

After some further remarks defining his position, Dr. W. continued.

I do not believe that any good can come from this movement, how much I may have at heart the end that is desired by these gentlemen. I do not believe honestly that this is the method to arrive at the very good end they wish to accomplish. I do not believe it is by legislation. [Dr. Hammer. Will you give us the remedy?]

I say I do not believe that it is by the method of legislation coming from the doctors, but the legislation that is to do good must come from the already perceived necessity for it, not among doctors, but among the citizens. The good effect must come from the power that is in the people, backing the law You may put as many statutes upon the books as you please, they are dead letters unless they were backed by the spirit of the people by whom they are enacted, and not by a class. The speaker at this point referred to the Sunday law as an example of a statute not sustained by public opinion.

What I mean to say is, that I have no objection to laws being passed when the people are educated up to a point at which they demand that their lives shall be protected, that they shall be furnished with proper material for the cure of disease, then it is all right, but I do not believe that this move will result in any good to the community or to the profession, but to our injury rather than our good.

I do not appreciate the feeling of the man who says, "While we are struggling for existence, this man, that man, and the other man, who are noted quacks, are getting rich," nor do I think the better of the man who has expressed it to me. Ah! he was swerving in his heart when he indulged the thought.

I may consider myself a very scientific man, and call others quacks. I may do that, but the question, when you come to the law is, does the community consider them so? If they did (they have the law-making power, the fighting power), these poor devils couldn't get anything to do; they wouldn't be getting rich, and we be getting poorer. If the argument proves anything, it is that we are not the people, and if we are not the people why do you want the law?

I am opposed to legislating at present, or agitating the question at present, except as citizens, except as humble individuals, not as a combination of doctors. Now, the people have given to these men positions, whom we call quacks. Let every man that has the elevation of the profession at heart, under all circumstances, be willing to do what is right, whether he get richer or poorer. Let every man stand on his own individual basis as a man. More good has been done in many places for the medical profession and its standing, by the course and conduct of a single individual, than has been done by many of these associations and conventions in my opinion. The man who seeks the profession for elevation, is unworthy of it; and he who decries the profession because he is not elevated by it, ought not to be in it.

The views of Gallileo did not gain assent all over the world by associations of scientific men, and the passing of resolutions, or petitions to legislatures or the Pope; nor did the Copernican system of astronomy gain ascendancy over the old system by aid of legislative enactment. I believe it was Kepler who said, "God has waited a long while for his laws to be read, and certainly I can wait a long while for my reading of them to be read."

The man who is truly devoted to truth is willing for ages to pass, if necessary, before that thing will be recognized. He will try, of course, to promulgate his opinions, and his truths that he has discovered, properly; and it is their proper promulgation that we can agree upon; but the idea of having these particular views that we may entertain promulgated by legislative enactment does seem to me contrary to my notions of the proper way of attaining the end we have in view. I do not believe that any good is to be accomplished in this way. I believe it is the duty of every man to go on and do that which seemeth to him right in the premises, and if anything is required of the Legislature, let him throw off the cloak of the doctor and go up to the polls as a citizen. That is my idea in regard to it.

Dr. Wm. Johnston said he had taken no part in calling the convention, but it was not because he believed there could be nothing done by the Legislature of Missouri. He did not understand that the object of this convention was for the purpose of protecting themselves, but that this proposed movement was for the purpose of protecting human life. How could they effect their objects? He contended that it could not be done by individua effort alone. It must be by organized effort. This State should follow thel example of older civilizations—of England, France and other enlightened nations. There, a man, in order to practice medicine, must pass an examination and be registered. Laws are there enacted to protect the citizens. Was there any other place, except this country, where a man could get a diploma by studying eighteen months.

There were homeopaths all over the country; were all quacks? especially those who are scientifically educated. Anderson of Edinburg, a homeopath, was a scientific man. No one could read his book without being convinced of it, and if he chooses to practice that system he has a right to do so. When a scientific man comes forward they could not control him in his therapeutics. But they could control this matter as far as to require a preliminary education; and if the schools failed to send out proper men—men who could not pass examination before a competent Board, then let them be sent back to the schools.

Dr. Johnston spoke at considerable length, earnestly advocating the proposed reform, and holding that the State Legislature was the proper power to enact laws for the maintenance of the safety of the citizens. He believed that it was imperatively demanded that the standard of Medical education

should be raised, and that by the passage of such an act the schools would be forced to graduate students of higher medical attainments than hitherto. Owing to a temporary affection of the Dr.'s throat, and his distance from the reporter's desk, we were unable to obtain a more accurate report of his remarks.

Dr. M. M. Pallen. Perhaps, sir, it would be better for me to leave the discussion of this question to younger men—to those whose stars are culminating in the zenith, and let me retire within the shades and shadows of a passing life. I had no intention, sir, of addressing this assembly, but when I came here and saw its respectability, I confess to you, sir, that it awoke again the feelings that I had in the days of my youth, and fanned the slumbering fires for years locked in the embers, and I feel now the same devotion to the cause of my profession that I felt in those by-gone days. [Applause.] Sir, I am opposed to the passage of this resolution. [Applause.] I am opposed, sir, to the passage of this resolution, first, because I believe that it will be unsuccessful; secondly, because it ought not to pass, and thirdly, because we are deteriorating ourselves. We are humbling ourselves in asking the protection of the Legislature. [Applause.] But, sir, I will give a reason for the faith that is within me. It may be said, sir, that if we are unsuccessful we are doing our duty. But, Mr. President, you know, and every member of this association within the sound of my voice knows, that a want of success implies a want of merit. This is observed, sir, in everything. The successful party is right—it turns the course. But let that party be defeated, and there are thousands who will say that they were wrong. Let a gentleman be successful, and he is the most meritorious of men. Let him be unsuccessful and he knows nothing. As it is in mercantile life, so it is in everything. A want of success intimates always a want of merit. Let us apply to the Legislature and be defeated and we would stand before the community as wanting merit in our cause. It is for this reason, sir, that I say that we would be injuring ourselves in public estimation in applying to the Legislature for that which we should not obtain. Will there not be those who will come forward and oppose this measure? Will there not be many who will come forward and oppose this measure? From North, from East, from West, there will be men before the Legislature who will say, "Don't pass this law. It is improper. It is impolitic." All kinds of influences will be brought to bear upon the subject and the bill will be rejected, and this want of success will do us an injury.

Dr. Pallen continued: he considered the resolution ought not to pass, because it was contrary to the individual liberties of men. Every man had a right to employ such persons as he pleased. He did not look to the English rules upon the subject. He appealed to his own conscience, as a free citizen of this State, that every man should enjoy freedom of thought, liberty of action. We had no right to legislate on this subject. It ought not to pass, because its passage would injure members of the profession—a profession that he had been devoted to for years, and that he should bless with his dying breath if consciousness be left. There would be a board of examiners—a high board of appeals to decide upon our merits. Was this board to be appointed by the Governor, or the Legislature? They might select men from some particular school, and these men would select such men as belonged to their particular schools, and quacks licensed by this court of our own creation would come forward with the same kind of licenses that we have. And when we call them quacks one of the community would answer "quacks! quacks, indeed; are they not men licensed by the particular court that you established? They stand upon the same platform that you do. You can no longer eschew them. You must consult with them. They

belong to the same fraternity. It is nonsense for you to say you will not longer counsel with them." And farther, we should deprecate and humble ourselves in our own estimation by coming forward and asking the Legislature to protect the public health. We were asking the Legislature to protect quacks, all we wanted was to be let alone. Let us plant ourselves upon the platform of science, of good feeling, humanity, and good will to all mankind, [applause,] and when we had done this we could defy all sorts of quackery. He didn't wish to be understood as speaking from self-interest, or because he had occupied a certain position for upwards of a quarter of a century, that he was standing here to advocate the interests of schools. Those who knew him best knew better. He was keenly alive to all improvements in medical science, and did not stand back because things were new, but on the contrary, conservative as he was in politics, he was progressive in the cause of science. [Applause.] He knew the schools ought to be reformed. He was well aware of the evils existing in the schools, and it was not his desire to protect them. We should injure ourselves if we asked this protection. Let the protection come from ourselves. Let the schools send forth men more qualified and deeply imbued with the science and art of medicine.

Let the reform commence where it ought to commence—in the schools; let us send forth educated men; let them be humanitarians, and the profession, by being thus elevated, will occupy such a position that we shall not require any protection. But if we ask the Legislature to protect us, you may rely upon it the impression is that like certain other individuals, we want protection to the injury of other portions. We should be like the manufacturers of New England. We want protection to the injury of the West and the South. [Applause.]

Dr. M. A. Pallen again took the floor and urged his views in favor of legislation with much force. Their object was to have all irresponsible practitioners swept away from society. They proposed to demonstrate to the Legislature that there was a woful shortcoming in the profession of medicine in the State of Missouri, and that they, as conservators of the public welfare, needed to protect the people against the shortcomings of the medical profession itself. He had said nothing of homeopathy, kindly sympathies, electricians, or any other ism, but he spoke of the profession of medicine as practiced in Missouri. He felt a blush mantling his cheek when he realized that any man, shoemaker or carpenter, by paying ten dollars, might cast his sign to the breeze and claim himself to be a practitioner of surgery, obstetrics, &c. He did not come here to abuse the homeopaths. God knew he didn't want to make martyrs of them. They are exceedingly anxious we shall abuse them. On the contrary, if the people wish to employ them, let them have them and suffer from them.

Dr. J. B. Johnson. It seems to me that the argument of the gentleman who has just taken his seat (Dr. M. A. Pallen) confutes itself, for we are told that a Legislature may pass an act by which any person who practices medicine for a livelihood by paying ten dollars for a license can obtain it. If such is the action of a Legislature, deliver us from any contact with such a body. [Applause.]

Dr. Linton. We can enlighten the Legislature perhaps.

Dr. Johnson. I am not speaking of what we can do, but only of the practicability of this body memorializing the Legislature for protection. I take the ground that it is disreputable for us to do it. It seems to me that it is the very first evidence of a weakness for us to petition the Legislature for help—for aid.

It has been argued that we are not asking protection for ourselves; but will the public thus think? Suppose the public turn around and say, "why,

these men must be very weak, if they are forced to petition the Legislature for assistance, aid and sympathy." I stand above all this. I believe the medical profession needs no encouragement, except that which it has in itself. The medical profession need not go out of its way to create popularity; but it makes it as the sun of heaven creates the light of day. We do not desire to prostrate ourselves upon our knees and ask the Legislature to protect us from the opinions of the community. I care not for the opinions of the community. The community judge of the merits of men without knowledge. They speak of professional men and subjects with so much flippancy that you would suppose they were thoroughly acquainted and competent to judge of their qualifications; that they are able to judge who is qualified for his profession and who is not.

In order to create a proper feeling for the profession the public mind must be educated. It is not the medical mind alone, but the public mind, and the only way to do that is to begin in the public schools to educate them. There is the place; and I undertake to say that physiology and anatomy should be taught in every public school in the country, and girls and boys should be well qualified to understand their organizations. Let them understand the laws of hygiene—the laws of health, and how to guard it: and they can only do this by a proper knowledge of anatomy and physiology. It should be taught at home as well as in the schools, and when the public mind is thus educated the legislators will take care of the profession without a petition: *they* will guard against quackery—the public mind having become educated.

I have been surprised here this evening to find that gentlemen have advocated that we should go before the Legislature and express our desire to be protected. To be protected from what? Why, the call issued for this convention explains it. "To be protected from knavery and quackery in the profession." That is the argument, and to my mind we had better begin to work at home before we do anything else. We better purge ourselves before we go before the Legislature to ask them to purge the public. Take the mote out of our own eyes first. Heal ourselves first and then appeal to the public. It seems to me very strange that we should make this acknowledgement here in this public call, and then go before the Legislature and ask them to try to correct the public mind in relation to knavery, when the call of the convention was to relieve the profession of knavery. I think we better resolve ourselves into a committee to devise means how to relieve ourselves of quackery and knavery, and then take the next best course to insure our success.

I have here in the code of medical ethics what seems to cover the whole conduct of the profession and the public. [Dr. Johnson then read from the third article of the code, to the effect that by the unwearied exertions of the profession, it was justiy entitled to the utmost consideration and respect of the community. That the object should be to make a proper discrimination between ignorance and empiricism, and that every facility should be afforded for the acquisition of medical education.]

This covers the whole ground. I say that appeal has been made time and again from the first knowledge that I have had of efforts in this country for the elevation of the profession, and just in proportion as it has shown by its character and standing that it has been entitled to good will and fellowship, and confidence of the public, just in that proportion has the community received its members. But, gentlemen, there is a great deal of truth in the expression of "quackery and knavery in the profession." It is that which has brought us to the condition which we are in. It is our own conduct, one towards another, and towards the public—failing to stand on this platform with manliness and decision, that we have brought the profession to the position it now occupies. There is no question in my

mind about it. I am satisfied of this, and I do feel—such is my attachment to the profession and towards those who have been its leaders in my youth, as well as in my more advanced age—my affection for the fathers of my profession, that mighty cloud of witnesses, who are read every day, in every language, that I do not believe any inside influence can be brought to bear to destroy it. It has had its reverses and its successes, its disasters and its triumphs, and it is yet to triumph with a full blaze of glory. I care not for outside influence. You speak of homeopathy—it is a thing I do not consider, it has not entered my mind or consideration in relation to the practice of my profession. It is very true I see men who stand in the community and assert that which is new, that is connected with this system of empiricism is nothing more nor less than old systems revived, of truth which is not new, and new things which are not true. I say that the outside influences, such as the fear of homeopathy, have no effect on my mind; eclecticism. and all other isms, have no influence on me, and I do not suppose they do on you. I am simply satisfied with my profession. I believe it contains all the great truths which these very men practice, though they do not admit it. They nevertheless do it secretly. They have come to consider small doses no longer fashionable, but large doses are now given, and it can be proved, and they do it daily. They are a little shaky, but the medical profession is as stable to-day as when I entered it, and will continue to be to the end of time, no matter what these buzzing flies may do around and about us. I care nothing for them.

There has been a kind of sore footedness on this subject. It has been said that we do not ignore homeopathy. I do ignore it. One gentleman boldly stated he did not ignore homeopathy. I am free to say I do—with all other systems of quackery—for I look on it in the same light. I would not allow it to come into this association, and I was much surprised at the question to one of the members, if he ever consulted the homeopathists. I was surprised to hear the question, but I was not surprised to hear the answer, (applause,) for certainly I would not fellowship with men in my profession who would consult with a quack. I would not consider him a medical man, and I think we have got to legislate among ourselves on that point. If we will only stand up to what we profess, and preserve the integrity of our profession by putting out of it what is empirical in it, and having nothing to do with these outside influences, we shall have nothing to fear. We want no legislation, and I am opposed to it in whole, and in part.

Dr. M. L. Linton advocated the measures proposed in the resolutions, stating that for the last 30 years he had labored, both by mouth and pen for this end, and regarded it as the only feasible means by which it could now be accomplished. He ridiculed, in a very felicitous manner, Doctor Johnson's recommendation, that quackery could better be abolished from the profession by educating school-girls in the anatomy and physiology of the perineum. We are sorry not to have a full report of his remarks, which were received with applause by the friends of the measure.

Dr. Maughs spoke at length, opposing the passage of the resolutions, considering them neither feasible nor proper, having been tested in other States and found wanting. He adverted to the relation existing between the Association, as a body of scientific men, and the public in general, holding that it was outside of the jurisdiction of a professional association to legislate concerning the interests of the community.

Owing to the lateness of the hour, his very able remarks were not reported in full.

The Association then adjourned to meet at 11 o'clock A. M., on the following day.

SECOND DAY—MORNING SESSION.

The Association was called to order by the President, Dr. Williams, and the minutes of the previous meetings were read and adopted.

A communication from Dr. Green was received, informing the Association that he would be pleased to offer a few remarks on certain refractive anomalies of the eye, including astigmatism, illustrations of which he had prepared. The Association determined to hear Dr. Green on the subject proposed at 7½ o'clock P. M.

Dr. Pallen moved the association resolve themselves into a committee of the whole on the state of

MEDICAL EDUCATION.

Motion carried, and Dr. Barker was invited to take the chair.

Dr. Hammer, on taking the floor, stated that he took this opportunity of speaking upon this subject, being cut off from any extended remarks in the regular convention by the fifteen minute resolution. It was remarked last evening that legislation would not answer the purpose. One gentleman who had spoken against this attempt to legislate had well remarked that medical education was in the worst condition that could be imagined. Fifteen years since he (Dr. H.) had read an essay on medical education before that very association, laying down the rules to be observed and the improvements necessary, and nineteen out of twenty in the convention were opposed to a change in the system of medical education which he had proposed, and he had at least the satisfaction of seeing that the leading men in the profession, in the professors of the colleges, had found it necessary to follow the track which he had designated.

Some time since a national convention had been called at Cincinnatti to adopt a system that should meet the demands of the times. Out of the representatives of 100 colleges of the United States there were only about twenty or twenty-two, and out of that small number one or two had come to raise opposition. The very schools that had been so loudly crying for progress in the profession had sent the least number of representatives. It was only in one way that the evil could be remedied. If that system was adopted, it would save the country. If they continued in the same way as at present, they would meet with the curse and condemnation of coming generations. Every sincere, upright man in that convention expressed himself to that effect. The council advised as to how this system could find its way into the country. It was obvious to every one that it could only be introduced by concerted action on the part of all the schools in the country. They could all see that without this it would be unsuccessful. There might be sixty or seventy schools which would not confer the degree of M. D. on young men until they gave ample satisfaction, while other schools were content with a lower standard of education, which would create great embarrassment. In the Cincinnati convention he (Dr. H.) told them the only means of bringing on a concerted action,

which was to take away all arbitrary action on the part of colleges and compel them to do what was right—that diplomas should count as nothing. He had tried that in Cincinnati. He said there that he wished to be deprived of his right to examine his students. He did not wish to be the judge of the qualifications of these young men. A resolution was introduced, signed by himself and two others, to the effect that it should be one of the principal objects of the Medical Association to agitate the question throughout the whole country, in every legislature, that a law should be enacted and passed with a view to create a State Board of Examiners, and that every man who wished to practice medicine should do it without being required to obtain a diploma. The result would be that no one would seek for a diploma, but would take more pains to fit himself to stand an examination by the Board. What then would become of the schools? They would have to come up to the demands of the times or perish. And the teachers of Cincinnati, who had the welfare of coming generations most at heart, were perfectly aware of it. He regarded this matter as much more calculated to improve the system of medical education in this State than any protection on the part of the Legislature. He could protect himself under any circumstances. He regarded the measure as a most factious effort to bring about this result by force. This was very well seen by a great many, but was not readily acknowledged, because such acknowledgement would cast a suspicion upon it. One fact was evident and beyond contradiction, that medical education had at least been deficient in one direction. Last night there was great boasting about the great value of diplomas. He would give an instance touching this matter which came directly under his observation. Some three or four years ago he was with a board of commissioners for the purpose of examining assistant surgeons for the army. One morning the Medical Director had requested him to examine a young man who had come there highly recommended. The young man appeared before him. He examined him in anatomy, physiology and surgery, asking him to name any one of the bones which composed the skull. He could not do it. He then asked him what the heart was, but he couldn't tell. He couldn't tell the difference between an artery and a vein. He couldn't tell even the functions of the lungs. The consequence was that he was rejected. Shortly afterwards he met the gentleman who had recommended the young man, and told him why the young man had been rejected. The gentleman was very much surprised, and exclaimed: "That is very strange! He was the best student in anatomy in the whole class!" [Laughter.]

A voice. Was he a graduate?

Dr. Hammer. Most assuredly. He had his diploma. He was the best in the whole class.

Dr. H. continued: He had known other young men who had graduated in the same way and become good physicians, but it was not by virtue of their diplomas but by hard study and experience since they had graduated. In this respect the system of education was very deficient. What was there to prevent our changing this system? Was it not very cowardly not to move a finger to remove the evil while they are able to reach and strike it? The reason they did not strike it was because they were all indifferent. With this feeling there could be no progress in mechanics, arts and sciences. Men must divest themselves of all egotistical notions, and make some sacrifice for the general good.

Dr. Linton concurred with the last speaker (Dr. Hammer,) that the only means of elevating the standard of the medical profession was the establishment of a board. No efforts on the part of any schools would do as much good. He considered it plain enough to every one that lengthening the terms in the schools would not reach the object. But if they had a well

qualified, sworn and impartial board, whose examinations every candidate had to pass, then the object would be effected. What was the objection to such a board? Some one had said last night that it was something new in this country. It was not so. There were army and navy boards who would not receive a diploma from any school as a sufficient guarantee of capability. He admitted the importance of the lives of seamen and soldiers; their lives were very dear, but were not the lives of women and children of the country equally dear? He believed in a rigid examination of all men. They were not going to let quacks in, when the lives of the rising generation were at stake. Was it not as important to have rigid examinations of those who treat our children, as of those who treat our soldiers? Common humanity would answer "yes." The better feeling of human nature would seek rather to protect the rising, helpless, and ignorant generation. Every reason for an army and navy board applied equally to State boards. He wished they could have a United States board, and he thought the time would come when they would have it. Medical teaching was the best means of medical study. No person could become acquainted with a subject so well as those who teach it. It was by teaching that they learned, and it was by patient study, year after year, that they acquired a perfect knowledge of these matters. It made no difference where the student got his learning, so long as he got it. He would'nt ask him for his diploma; so long as he passed examination, all right. If young men would associate together and employ their time in teaching each other in various branches of science, they would become much more competent. Why might they not do it? The answer was like that of Jamie Thomas, the poet, when asked why he did not get up earlier in the morning, "I hae na motive, mon!" There was no motive for it under the present system; but if they could pass the Board without diplomas they would be stimulated to exertion. He did not consider this as indorsing quackery. Men were quacks merely because they were ignoramuses. He considered that this measure, so far from indorsing quackery, would destroy it altogether, by elevating and educating all to the highest standard in the profession.

Dr. Watters believed the gentlemen who had spoken had not the matter of medical education more at heart than the gentlemen who were opposed to the measure under consideration. The opinions of those opposed to the move were that it was not the plan to accomplish the object. He didn't believe that medical faculties or medical men were any more innocent than any other class of men—doctors were men as well as doctors. He didn't believe the Board appointed would be any more immaculate than other men, and would be liable to be governed by the same influences.

Dr. Linton. Does the gentleman think the army and navy boards are useless?

Dr. Watters. No, sir; I do not.

Dr. Linton. Can they be bribed?

Dr. Watters. No, sir; I do not think so.

He was not opposed to anything that had a tendency to elevate scientific knowledge of the profession. Whenever the legislative power appointed such a board he would go with it, but he considered they would elevate the profession much more by confining themselves to the discussion of scientific subjects, instead of allowing questions of this kind to divide them. He did not consider that any such law would stop quackery. He was in favor of it if it would. We had a law-making power and a judiciary. These departments did not belong to doctors. He was in favor of leaving to the legislative powers, the enacting of laws according to their best judgment, but let the doctors attend to their provinces as doctors in the elevation of science. If they wished to go into the political arena, why not go into the street and call together a mass meeting and harangue them upon this

particular political movement; but he considered the profession was being degraded rather than elevated by the present proceeding. This difference upon outside questions had done more to lead the outside world to believe that those who were called quacks were just about as good as those engaged in the profession.

Dr. Hammer replied briefly, refuting the charge that the association were degrading themselves by their action in this matter.

The Committee on credentials then made their report, from which it appeared that of the gentlemen attending the convention, 128 had presented satisfactory credentials or been vouched for, and had their names registered, but that there were a number in attendance who had not yet done so.

The President announced the following as the committee to nominate officers for the next regular meeting:

Drs. Dudley, Heitz, Fenn, Barbour, Washington, Sr., Montgomery.

On motion the Association adjourned till half-past seven o clock.

NIGHT SESSION.

The Convention met at half-past seven o'clock.

Dr. John Green, of St. Louis, made a communication to the association upon *Astigmatism.*

The remarks were illustrated by a set of a diagrams displayed by a magic lantern, so arranged as to exhibit in a striking manner the various optical phenomena of astigmatism and its correction by cylindrical glasses.

On motion a vote of thanks was offered to Dr. Green for his very interesting remarks.

The President then announced that the regular business of the evening would now be in order.

Dr. Hurt then spoke upon the proposed memorial to the Legislature in regard to an examining board. He had supposed that our medical colleges stood as high as any other institutions, and that the education given in these schools was of as high order as that given in schools of any other profession. He had been surprised to hear from those who ought to know, that our medical schools were fearfully demoralized; and if such were the case, at least to the extent claimed by some here, the charter of these schools had better be surrendered.

He objected to such a board of examiners practically, because it would be impossible to have such a board without their being connected with some political party; such a board would be attended with expense, and the state of the country will not at present allow the increase of the number of salaried officers.

The people have not asked for such a thing, and although it might be well thought of in the city, the people in the country can't see it.

Many young men would fail to get an education under such a rule, for those too poor to enter college have gone to some remote neighborhood and there pursued their studies, and experimented, if such a term may be used, made themselves useful to their neighborhood, and in time became an honor to the profession.

Dr. J. M. Scott denied the right of this association to ask the Legislature for such a board, as an association, whatever right they might have as citizens. He further denied that the country physicians were represented

in this body at this time. He claimed it would be an act of tyranny to say to the citizens of Missouri who should be their medical advisers.

Dr. Dudley referred to the objection made to the proposed memorial, that the *people* had not asked for it. He proposed that, occupying the position of petitioners to the Legislature, we should give the people, through their representatives in the Legislature, an opportunity to say whether they wanted it or not. He had heard a great deal about the *dear people* from gentlemen who admitted their unwillingness to submit to the rule of the people, and who would not do so could they avoid it. He scouted the idea that any but regular physicians could get a place upon the proposed board, and in answer to the objection of expense, asserted that Lighthill would take more from the people in a single charge than the board would cost. He deemed that those who opposed this measure did so from interested motives. It was for the interest of all in the State that this measure should succeed.

Dr. Lemoine had deeply regretted this move; this matter had once before been discussed in this association; the memorial on that occasion was presented to the Legislature, and passed by almost with contempt.

Dr. Kennard corrected Dr. Lemoine in his statements about a memorial of this kind, but stated that it was a petition for the repeal of a statute defining what was a physician, and the resolution offered at that time.

Dr. Steedman stated that for ten years before the war such a board had been in existence in Alabama, and had given satisfaction. That by its means quackery and charlatanism had been suppressed in that State. Since the war while everything was in a disorganized condition all sorts of quackery had again sprung into existence. Upon the re-organization of the Montgomery Medical Association, just such a proposition was brought before it, and they had memorialized the Legislature, and a bill had been passed almost verbatim as asked.

Dr. Barker claimed that the association had the right of petition, and more than that, he considered that it was the duty of the association as educated medical men to do all in their power to protect the people. He had had nothing to do in starting this movement; was surprised last evening to find the discussion all on one side; he had hoped the discussion would not be limited to St. Louis physicians; he thought this was a step in the right direction. There was need of it, as instanced in his experience of the examination of persons who presented their diplomas and letters of recommendation and desired to be appointed contract surgeons in the army. The speaker read from Dr. M. M. Pallen's remarks of last evening, in which he admitted the short-comings of the schools, and argued from that the necessity of the board.

Dr. Marshall announced that he should vote for the resolutions; he believed the man who studies his profession has a right to demand from the Legislature protection from quackery; there was but one way to stop quackery, and that was through the Legislature; if the members of this convention knew that a large number of deaths occurred in this State every year through quackery, it was their duty to vote for this measure. The Dr. related some amusing instances of ignorance on the part of persons pretending to practice medicine.

Dr. Anderson replied to Dr. Scott's statement that the State could not prescribe to the people what physicians they shall employ by instancing the examinations required by law of engineers.

Dr. Outten. complimenting the older members of the profession who had opposed this measure, said he should as he ever had done, still follow their teachings, for they had always told him when he knew he was right to go ahead, though the heavens might fall, and because he knew he was right in advocating this resolution, he should continue to do so. He considered it the province, and the duty of the association to inform the people through its Legislature of the state of things among them.

Dr. Whitehill thought the only course for attaining the end sought, was the one proposed. Certainly it could not be derogatory to the Association to assert the right of petition—the inalienable right of every American citizen. He had been surprised to hear the attempt made to draw a distinction between a scientific man and a citizen. It was indeed strange logic that a man was any the less a citizen, or forfeited any of the rights as such, because he was a scientific man. It had been said that we must look to the schools for the required reform. If this were so, could the united, co-operative efforts of all the schools be obtained, but this unfortunately cannot be done. Nearly twenty years ago, the American Medical Association recommended, as a means of elevating the standard of Medical Education and the dignity of the Profession, a lengthened course of study and a more rigid examination of the candidates for graduation. Two of the courses of lectures he had attended when a student, were the long six months terms of the Pennsylvania University, when that sober old institution took the lead in following the recommendation of the Association. The other schools in Philadelphia continued their usual four and a half months terms, and in two years the number of students in the University had decreased over thirty-three per cent., while the other schools had correspondingly increased. As a consequence, the University had to fall back to the old routine, to sustain itself. It had been said that the plan proposed was not feasible—that it had been tested in other States and failed. The statement of the gentleman from Alabama was directly to the contrary The repetitioning for the appointment of a similar Board, was evidence that the workings of the former one had not been a failure.

While Medical Director in the U. S. A. service, Dr. W. had had occasion, under instructions from the Surgeon-General, to organize a board for the examination of certain regimental medical officers, who were believed to be incompetent. Of the number dismissed upon the recommendation of this board, he recollected but one, who was from a State that had required satisfactory examination before a medical board, before issuing the commission. The others were from States where appointments were made through political influence or personal favoritism. If the United States government protects its soldiers from the effects of quackery, by requiring an examination before a competent board of examiners, irrespective and regardless of

diplomas, why should not the States afford equal protection, in like manner, to women and children.

A properly constituted Board of Examiners would relieve the faculties of Medical Colleges, from examining their own students for graduation; they would be thankful for such relief, and the tendency wonld be to foster a more uniform standard of qualification.

In conclusion he referred to a notable instance of quackery in this city, on the part of a man who was endeavoring by sundry manipulations to remove "a pizen," which he said would fill the stomach with cockroaches, lizards, &c. The fellow said he had n't an office, and did n't practice regularly.

Dr. Prewitt thought the trouble to be in the medical schools and not in the lack of legislation; the difficulty ought to be met in the schools, and would be met there if the medical profession would sustain the schools; he was not opposed to this measure *per se.* but doubted the practicability of it.

Dr. Leete confessed his astonishment that it was held undignified or immodest for the association to move in this matter; he believed the people would regard it as an act of kindness if this body would assist them in determining who are properly qualified to render them proper medical and surgical attendance.

After an ineffectual effort to rescind the rule fixing the time for taking the vote at ten o'clock, the vote was taken upon the memorial, and resulted 52 in favor of and 38 against the memorial, 32 not voting, as follows:

AYES.

H. B. Allen, R. S. Anderson; St. Louis, Mo. E. L. Atkinson, Washington, Mo. S. C. Baldwin, W. N. Brennan, J. F. Berghoff, W. S. Barker, G. H. Blickhahn. S. H. Bottomley, Birch; St. Louis, Mo. J. P. Chesney, New Market, Mo.; E. E. Coleman, St. Louis, Mo. G. F. Dudley, D. V. Dean, J. T. Douglas, Fred. Fricke, J. E. Folsom, N. Guhman, N. M. Glasfelter, J. E. Gaverret, A. Green, A. Hammer, T. H. Hammond, R. J. Hill, S. P. Ives, Wm. Johnston, H. Judd, T. Kennard, M. L. Linton, J. M. Leete, C. V. F. Ludwig, W. A. Madill; St. Louis, Mo. J. J. Miller, Normandy, Mo; Drake M'Dowell, Alex. Marshall, W. Niehaus, James O'Gallagher, W. B. Outten, M. A. Pallen; St. Louis, Mo. J. B. Pondrow, Jefferson City, Mo; C. D. Payne, Moselle, Mo; J. F. Prewitt, James T. Pirtle, J. F. Rumbold, C. C. Spencer, A. J. Steele, J. G. W. Steadman, J. Spiegelhalter, Jas. R. Washington, J. L. Whipple, J. C. Whitehill, J. M. Youngblood; St. Louis.

NAYS.

J. S. B. Alleyne, B. A. Barrett; St. Louis. J. F. Barbour, New Madrid, Mo; A. F. Barnes, G. H. Baumgarten, J. Bates, J. W. Clemens; St. Louis. J. Blane, St. James, Mo; W. H. Cooper, E. DeCourcillon, W. Dickinson; St. Louis. J. P. H. Gray, California, Mo; J. Green, St. Louis; S. Griswood, New Haven, Mo; W. W. Grissom, G. Hurt, A. Jaminet, A. Kueckelhan, E. S. Lemoin; St. Louis. W. Lough, Kirksville, Mo; R. B. Lewis, Flat Hill, Mo; E. Montgomery, G. M. B. Maughs; St. Louis. L. J. Mathews, Lebanon, Mo; J. B. McDowell, W. M. McPheeters, S. Pollak, O. F. Potter; St. Louis. H. F. Steinhauer, Sappington, Mo; John Shore, J. M. Scott, B. F. Shumard, C. Sprague, R. Trevey, J. H. Watters, N. C. Washington; St. Louis. G. A. Williams, Boonville, Mo.

NOT VOTING.

V. H. Auler, C. E. Briggs; St. Louis. D. L. Bassett, Florisant, Mo; G. S. Bryant, E. Beukendorf, J. Fisher, E. H. Gregory; St. Louis. H. C. Gibson, Boonville, Mo;

W. A. Gibson, St. Louis; P. A. Heits, Palmyra, Mo; J. Heitsig, J. T. Hodgen, J. F. Johnson, J. B. Johnson, D. Kuhn, J. J. McDowell, M. Martin, G. E. McCosh, P. E. Noel, H. Nagel, C. F. O'Neil, M. M. Pallen, H. C. Pococke; St. Louis. J. Pitman, Kirkwood; F. G. Porter, St. Louis; T. L. Rivers, St. Charles; C. G. Rohlfing, St. Louis; W. Rannells, Laclede; F. Shade, A. Strothotte, R. H. Slingleiff, Fred Wolf; St. Louis.

The result was greeted with applause.

Dr. Kennard offered the following, which were adopted:

Resolved, That this Association, representing the entire medical profession of Missouri, insist upon all the medical schools of this State hereafter requiring a higher standing of medical and literary attainments of students, before graduation.

Resolved, That we fully endorse the action of the convention of medical teachers which assembled in Cincinnati last May, in regard to this subject.

Resolved, That we most earnestly recommend our professional brethren throughout Missouri, to organize county medical societies as auxiliaries to this, the Medical Association of the State, and to regularly send delegates to the annual State convention.

Resolved, That we encourage no person to commence the study of the profession of medicine, who has not had a liberal education.

Dr. Alleyne complained that the reporter of the *Democrat*, had misrepresented his remarks of the evening before in saying that he had expressed himself as glad that the time was coming when the profession would treat the homeopaths as brethren; he had not intended to convey such an impression. Those who knew him, knew the fact that he had always stood by the profession, and he desired that the correction should be made.

Dr. Hammer moved a committee of five be appointed to prepare and elaborate a report embracing the substance of the resolutions, to be forwarded to the Legislature. Motion carried and the following appointed:

Doctors A. Hammer, M. L. Linton, J. B. Washington, J. M. Leete, and Drake McDowell.

Dr. Dudley, from the committee appointed to make nominations for the officers of the next regular meeting, reported the following names:

President—Dr. Wood, Kansas City.

Vice Presidents—Dr. Morris, St. Louis county; Dr. B. F. Burch, Franklin county; Dr. M. A. Pallen, St. Louis; Dr. W. H. Casper, St. Louis; Dr. J. R. Washington, St. Louis

Committee on Medical Education—Drs. Hurt, Leete, Dudley, Scott and Prewett.

Committee on Scientific Affairs—Drs. Clemens, Green, Shumard, Dean and Watters.

Committee on Publication—Drs. Hammer, Maughs and Baumgarten.

Secretaries—Dr. R. S. Anderson, St. Louis; John Barbour, New Madrid.

On motion, the report was received by the association, and the association proceeded to ballot for the officers reported by the committee, resulting as follows:

Yeas 46, nays 1, scattering 3.

The officers were then declared unanimously elected.

Dr. Pallen moved that a vote of thanks be tendered the officers of the association for the able manner in which they had performed their duties. Carried.

Dr. Pallen also moved that the thanks of the association be tendered to the reporters of the press for their services. Carried.

Adjourned.

MISCELLANEOUS

Fractured Clavicle in an Aged Person, Without Visible Sign.

M. A. Guerin related to the Paris Society of Surgery the case of a man, aged 60, who complained of pain in the middle of the clavicle, which was, however, not severe enough to prevent the movements of the arms. There was no deformity or ecchymosis whatever; but on moving the arm with the hand placed on the clavicles, a slight crepitation could be felt. The patient in a few days died of pneumonia. At the autopsy an oblique fracture was found, the periosteum and all the soft parts remaining intact. Nor could the fragments be moved by almost violent direct pressure, but only by raising the ends of the bone. M. Marjolin observed that when the diagnosis of these cases is difficult the mode recommended by Robert may be tried. The patient is desired to raise himself on his two wrists, and, while he tries to do this, the hand applied over the clavicle, easily perceives the crepitation.—*Med. Times and Gaz.*, Aug. 17, 1867.

HUMBOLDT MEDICAL ARCHIVES

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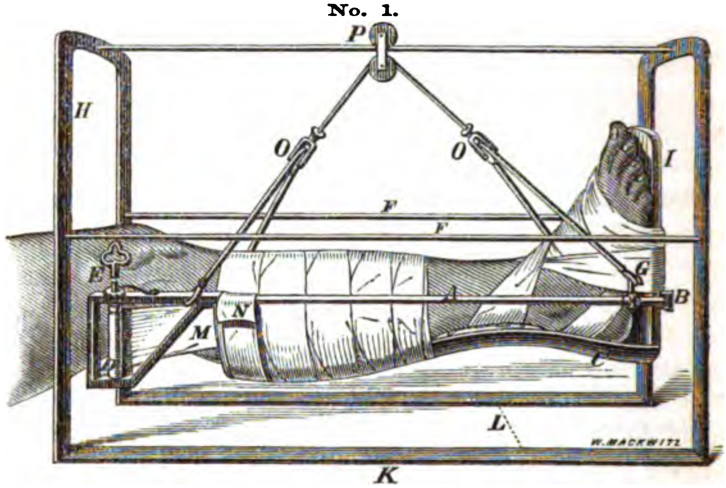
A SUSPENSION SPLINT, FOR TREATING SIMPLE AND COMPOUND FRACTURES OF THE LEG. By E. A. CLARK, M. D., Resident Physician, St. Louis City Hospital.

The great necessity for a well adapted apparatus in treating fractures of the leg, suggested the utility of the instrument I have designed in the following woodcut, which, not only answers every practical purpose in treating this class of fractures, but also contributes very much to the comfort of the patient, who, while he is enabled to execute every movement of which the sound limb is capable, yet, cannot displace the fracture or modify the force of extension. In presenting this apparatus, I claim an advantage over those invented by Hutchinson, John Neill, Crandall and Salter, not only for the means of extension and counter-extension, but also its adaptation to the treatment of compound fractures of the leg, as represented in figure No. 1. And considering the simplicity of this instrument, with its cheapness and application to every variety of fractures of the leg, will certainly give it the precedence with those who may venture to use it in a single case. The apparatus is such as may be made by any blacksmith, or indeed by any ingenious surgeon in a case of

necessity, when a wooden frame and two hoops with a common iron pully will answer quite as well as the instrument which I have had made of iron on the following plan.

No. 1.

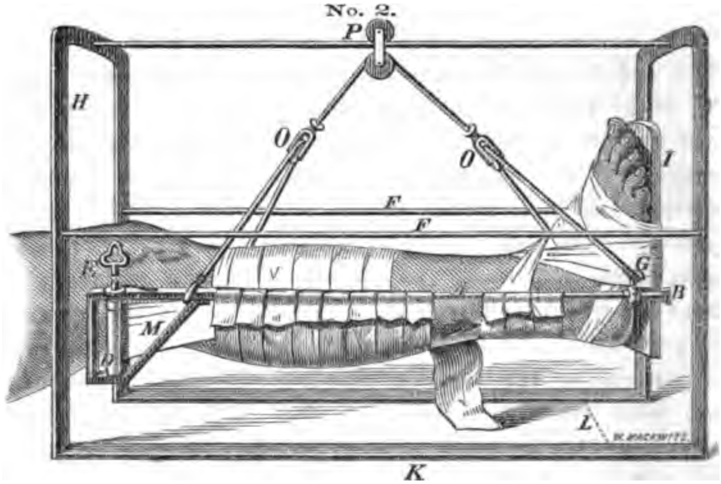


The two arches represented by the letter (H), at one end, are made of iron bars one-eighth of an inch in thickness, and three-fourths of an inch wide. These arches are continnous with the bottom pieces (K), which support them upon the bed and measure twenty-two inches in length, making the distance between the two arches, which are also supported on the sides by the two slender bars (F.F). While the bar extending across the top, upon which the pully (P) glides, should be made flat, with the long diamater perpendicular so as to prevent it bending with the weight of the leg. The width of the arch under which the leg is suspended—as indicated by the letter (L), should be 15 inches, and the arch 18 inches from the surface of the bed.

This discription will be sufficient to indicate the proportions of the exterior apparatus. The bars represented by the letter (A), in which the leg is suspended, should be about two

feet in length—unless when the fracture is too close to the knee, and it may be necessary to attach the adhesive straps (M) above the knee, then the bars may extend to near the perineum if necessary. The crossbar passing beneath the bracket at (B), and upon which the foot rests, should be flattened and five inches in length, so as to allow ample space for the limb to rest between the bars; the space between these bars at the upper end should ordinarily be about six inches. The splint (C) upon which the leg rests in figure No. 1, should be fluted upon its upper surface so as to conform to the shape of the leg, while it is also made oval upon its under surface, so that both the leg and the splint may be included in the bandage shown in figure No. 1, by which means any displacement may be corrected in the fracture and the bones kept in perfect apposition. The foot piece (I) should be attached to the posterior splint at an obtuse angle, so as to correspond with the natural position of the foot. The foot is bound to this piece by means of adhesive straps which may embrace the whole of the foot, and extend partially over the ankle, but not so as to arrest the circulation, as by the figure of eight bandage formerly used around the ankle for making extension. The leg then, as seen in figure No. 1, is supported upon the crossbar passing under the bracket (B) attached to the foot-piece, and by resting upon the strap (N), pinned over the bars (A) on either side; while the extension and counter-extension is effected by means of the bar across the foot-piece below, and above by means of adhesive straps three inches in width, as indicated by the letter (M), which are attached to the sides of the leg, beginning just above the point of fracture and passing up to be wound around the cylinder (D), which is three and a half inches in length, and turned by means of an ordinary clock key, represented by the letter (E). This cylinder is held in any position to which it may be turned, by a ratchet and wheel placed upon the upper surface of the bar, as indicated in the diagram—

No. 2.



It will be observed in figure No. 2, that there is no posterior splint as in the other diagram, but the leg is supported entirely by strips of muslin pinned over the bars on either side, which renders this apparatus more appropriate for the treatment of compound fractures in which the wound may be examined and dressed when necessary, by removing one or more of these strips which may be replaced by new ones without disturbing the fracture. The attachment of the foot-piece in this dressing does not in any particular differ from that of figure No. 1. The means of suspension is the same in both these dressings, which, by means of the pully at the letter (P), the patient is enabled to move his limb, or even his body, forward and back to the extent of the length of the bar upon which it glides, and by means of the cord playing over the under wheel in the same pully, the patient is able to flex and extend the knee by depressing or elevating the foot, which movement can be executed by a very slight effort on the part of the patient, while at the same time he can swing the leg from side to side to any extent within the space of the arches; and by means of the cords playing through the pulleys at (O.O.), the leg can be rotated to any extent, even to allow the patient to lie upon his side

if he desires, without disturbing the fracture in the least. It will be observed in the diagrams that at the letter (G) there is a thimble, which can be made to slide upon the bar, by means of which the lower end of the leg, can be elevated or depressed at the will of the patient, by sliding this thimble forward or back, and fixing it at any point by means of the little thumb screw attached to this thimble. In developing the utility of this apparatus for the treatment of fractures of the leg, I have tried various means of attaching the foot at the bottom, such as the muslin and flannel bandages in the form of a figure of eight around the ankle, covering the foot also, as far as the toes; but have always found them objectionable from the great amount of pressure and consequent arrest of the circulation in the foot, though the flannel bandage is much less objectionable than the muslin. But I have been able to obviate this objection, by the use of the adhesive plaster attached over the front of the foot, and around the foot-piece, as shown in the diagram; this I have ordinarily found quite sufficient, unless in rare cases, when an unusual counter-extending force is required, it may become necessary—as very aptly suggested by Prof. Hammer of this city—to pass a strip of adhesive plaster beneath the heel and around the foot-piece, which adds very much to the strength of the dressing. I have recently treated six cases of fractures of the leg with this apparatus, in which both bones were fractured, and in which there was more or less shortening in each case, with excellent results in all of them, without allowing the least deformity or shortening, while the patients were all grateful for the comforts allowed them by this apparatus during their confinement.

THE ELEVATION OF THE STANDARD OF MEDICAL EDUCATION. An Epitome of an article by WM. MASON TURNER, M.D., of Philadelphia.

We are pleased to see that the profession in our own

State, are not alone in agitating the question of reform in Medical Education; but that throughout the length and breadth of our entire country, attention is being aroused to the necessity of such reform. Whether or not the action of the "Teachers' Convention," held in Cincinnati in May last, will immediately result in the accomplishment of the object aimed at, there can be no questien, that it has already done great good, in arousing the attention of the profession generally, to the necessity of taking some steps toward removing the odium and discredit, if not actual degradation, that is being brought upon it, by the extremely low standard of requirement for *graduation* in but too many of our schools "in regular standing."

It is unfortunately the fact that Medical Students, too often not only seek, but are also encouraged from interested motives, to patronize the schools wherein they can be metamorphosed into doctors(!) in the shortest time, and with the least labor and expense,—the very laxity in the standard of graduation, being held out to them as an inducement for their so doing. And it is to be feared that the apathy, if not downright opposition on the part of schools, that "make doctors" as a matter of dollars and cents, toward a measure which will interfere with their popularity and curtail their pecuniary income, may, for the time being, materially interfere with and retard the consummation of the desired object. But the time will surely come, and that quickly, when the people will be as keenly alive to the necessity of a movement of this kind, as the profession themselves can be. It is indeed singular, and has long so appeared to us, that while men—keen, shrewd business men, and not unfrequently men of marked intelligence, will employ none but the ablest lawyer to attend to matters involving financial interests, they are so indifferent as to the qualifications or ability, of the physician in whose hands they entrust the health, happiness and lives of their wive's and children, as well as their own. Now there can be no question that the Medical Schools and Colleges, and

through them the profession, are to blame for this state of things. The facility with which "doctors are made," often without even a good preliminary English education, much less a classical one, has encouraged the idea among "the people," and given to it at least a semblance of truth that "the fool of the family," who is unfit for the other professions, is fit to "make a doctor of."

It is to this cause, we believe, more than to any and all others, is attributable the fact, which must be patent to all, that while a high standard of qualifications is deemed requisite for success at the bar, and an ignorance of the principles of the law would disqualify a lawyer for the practice of his profession, and surely bring upon him ridicule as an ignorant pretender, a much greater ignorance of the principles of medicine does not disqualify a physician from practicing *his* profession. Now we have faith that the common sense of the people will yet lead them to see and understand, that it really requires greater ability, and a more liberal and thorough education to comprehend, interpret, harmonize and generalize, the seeming contradictions and antagonisms, of the great unwritten science of medicine, than to read the plainly written undeviable science of law; and they themselves will comprehend the necessity for, and demand an elevation of the standard of Medical Education.

We are glad to see that so many of the leading medical journals are agitating the matter; pointing out the causes of our present low standard of education, and suggesting means for its elevation. We take the liberty of quoting largely from an able article by Dr. Wm. Mason Turner, in a late number of tbe *Philadelphia Medical and Surgical Reporter*. "As regards the causes," he says "the fault is partly that of the colleges, partly that of the public. The public at large are satisfied with too low a standard; college authorities do not exact one sufficiently high. The colleges are however chiefly to blame. * * * * the officers in our institutions of learning should be such in point of abilities as to know, long in advance of the public what

reforms are needed, to what extent, and in what direction. It is very certain that the colleges do not attempt, or have not attempted a reform in this respect. The standard of a large majority of them at least, is quite a farce. In some colleges, rejection of a candidate has not been recorded in a single instance. It seems indeed, that no man of three ideas fails to get a diploma. The consequence is, that medical diplomas are quite common; and indeed so easily obtained that they are of but little value. In our best colleges the standard is moderately fair, but they (diplomas) are no test of a students capacity * * * *. The graduate may be, and in a great many cases is well worthy a diploma from any school; but when a man a thousand times his inferior in every respect, possesses a similar diploma from the same school, that diploma can scarcely be reckoned a true evidence of his professional qualifications.

As reform in the question of standard is so necessary, and the colleges will not inaugurate it, I suppose it must start, as other reforms have started, from the thinking men of the community, who usually perceive truths at least a generation in advance of those whose business it is to put them into practical operation. Perhaps the same will have to be true, in regard to the science of medicine. And it must be confessed that for medical colleges, as at present established, to adopt a high standard, would be pursuing a policy to some extent suicidal, in a pecuniary aspect. It is natural, that they should feel indisposed to adopt a policy, which, though very beneficial to the public, would nevertheless be so at their expense. This fact has, no doubt, a great deal to do with the present status of the medical profession among us. Many lazy men, unfit for the practice of medicine, or for anything which necessitates mental labor—study medicine, simply because they can easily obtain a diploma! To lower the standard, the larger will this class of students be. And it is not true, that inefficient graduates, in other departments, are equally injurious to society—for the simple reason—they have not the means nor the opportunity for becoming so. But the tide of doctors still pours in. If the mills of the gods grind slow, those of medical colleges do not; and from competition, desire of patronage, with some "*quid pro quo*," however useless to the recipient, and dangerous to society; in a word, chiefly, no doubt, from the desire of pecuniary emolument, medical colleges offer remarkable facilities for graduation,—their halls are crowded

with students, and every county has a dozen men, whose only business is to do badly, what true men might do well, to the benefit of society and of themselves.

This matter is more serious than many would, at first view, be apt to think it, and it is one in which all are to some extent interested. Instances of malpractice are frequently met with in our law reports, and men have been severely dealt with for what, in this respect, the law is pleased to consider a crime. The fact is, that malpractice is a *serious* crime; a crime of so dangerous and subtle a nature, that the courts should put it down whenever they can. But I think they commit one very material error—they mistake the criminal—they punish the wrong party; instead of the ignorant physician, it is the college which granted him the diploma, which *should be* indicted and prosecuted.

The status of the medical profession, as regards its standard in general, is attracting the attention of physicians, as may be seen from the Report on Medical Education, presented by Dr. STILLÉ, at the recent session of the American Medical Association. This leads me to say something about the *remedies* for the existing state of affairs in the medical profession. Dr. STILLÉ's report recommends in substance the following:

1st. That every applicant for matriculation be required to show by certificate or examination, that he has a thorough knowledge of the common English branches of education, including the first series of mathematics, elements of natural sciences, and a sufficient knowfedge of Latin and Greek to understand the technical terms of the profession.

2d. That a student be required to study four years, three of them being "regular annual courses of medical college instruction," before being examined for graduation as Doctor of Medicine.

3d. That the minimum duration of such a course shall be six calendar months.

4th. This resolution is long and enters into details, the most important of which are these: that there shall be at least *nine* professors to teach the several branches of study; that these several branches shall be divided into three series, termed respectively the sophomore, the junior, and senior; that each of these series shall occupy the student one term, at the end of which he is submitted to a thorough examination, and at the end of the third term, the student "shall be eligible for a general examination for the degree of Doctor of Medicine."

5th. That attendance at lectures and other exercises is to be noted, and a certificate, specifying time and courses attended, shall be the only evidence of such attendance.

Simply stating my general approval of the above recommendations, I pass on to notice some additional features, the adoption of which would, I think, improve the scheme as presented by Dr. STILLÉ. But

1st. In regard to an Examination for Entrance.

The preliminary examination which I would advocate, is not intended to find out what an applicant may know of *medicine:* he is supposed to learn that science only when admitted within the walls of the college, but it is to determine satisfactorily if that student has a general education sufficient, and mind and reasoning power enough to warrant him to *begin* the study of medicine, by no means a trifling or puerile task.

2d. Oral Examinations Daily.

By this means even a large class may be examined, and that rigidly on the subjects previously discussed. All students who have been instructed this way, well know that they can thus frequently learn more than during the lecture itself. The introduction of such a system of examinations might demand a curtailment of the daily lectures, so far as *number* is concerned, and this would necessitate a lengthening of the term. This we have already endorsed as desirable.

The system of oral examinations is, if I am correctly informed, adopted in the medical departments of both Harvard and Yale Colleges. [It is also adopted by the Humboldt Medical College of this city.]

3d. The requirement of a certain amount of liberal culture and independent thought.

The intimate relations of the several arts and sciences, is a theme of striking interest. So close, indeed, is the union in question, that no one can well or thoroughly understand any one science without being, to some degree at least, acquainted with other sciences. So close, too, is this union and relationship, that a discovery in any one science will frequently throw light on some other, in a way wholly unexpected.

At the same time, the standard in this respect need not be superfluously high. There is no necessity for an applicant for matriculation (if an examination be required for entrance) or for graduation, being intimately acquainted with the minutiæ and details upon which the several sciences are based; but he should be acquainted with at least the leading conclusions of general science, especially of those departments of science which can be of use in the study or practice of his own.

But the second half of the above requirement is far more important, *i. e.*, the possession of a certain amount of independent thought, of a trained mind, of a mind habituated to think for

itself, to decide promptly and accurately upon what to others would be insufficient data, to grasp readily the salient points of a subject. In none except the demonstrative sciences, can principles be laid down which are wholly independent of circumstances. Though generally and nearly always appreciable, yet it would not do to apply them at all times. Moreover, circumstances may arise which were not contemplated when the general principle was laid down. In such an emergency, the possession of a trained mind is of inestimable importance. Without it we are completely adrift,

"Alone, alone, alone,"

in the vast waters of science, with no helm, with no compass, without even a star to point out a way of escape.

The application of this general principle to the practice of medicine is obvious. And, while it is true of all sciences that are practical, it is emphatically true of the science of medicine, in which the stake is of incalculable value, being the health, and frequently the life of a fellow creature.

The great advantages in point of mental discipline of the Latin and Greek languages, have not as a general thing, been sufficiently recognized. Apart from the disciplinary value of the ancient languages, the study of languages in general, is of very decided utility—in the ability thus imparted, of reading scientific works in the languages in which they are written. Most of our best works on scientific subjects, are either in German or in French. Large numbers of them have never been translated and are consequently wholly inaccessible to a student, who knows no language, save his own.

But there are other reasons, perhaps more decided, for not adopting an English nomenclature, even were the English language capable of supplying one. All other nations would have an equal right to form one, and consequently there would be no general language for science. Science demands and deserves a language of its own—a universal language, comprehensible by all scholars, fixed in its forms.

Science, then, should have a nomenclature peculiarly its own, not French, nor German, nor English—not wavering and mutable, but *fixed*, a language for the acquisition of which, men of all nationalities have good, if not equal facilities. These requirements can be met only by the Latin and Greek languages. And the Greek especially, is the most admirable language for scientific purposes, that the human mind has ever developed. * * *

It might be objected that if such a standard as the above sketched were adopted, too few could attain it. To this I make two replies.

1st. Granting the objection to be valid, some at least could attain to the standard—say the twelfth part, of those who actually

graduate as Doctors of Medicine. One man possessing the above qualifications would be of far more service to a community, than a dozen men with only the qualifications *now required*.

2d. In point of fact, the standard would *not* thus be made comparatively unattainable. It is not intended, in requiring a certain proficiency in Latin and Greek, that a medical student should be a SCALIGER, a BENTLEY, a PORSON, a GRIMM, a SCHLEGEL or a DIEZ. Moreover the demand would create the supply. A fine opening would be offered for the exercise of talents which now go into other professions. And although the number of graduates in medicine would be much smaller than at present, yet that number would be large enough for practical purposes. The *esprit du corps* would be immeasurably elevated, to the great benefit of the country, as well as that noble band which really constitutes the medical profession—whatever might be the effect upon the numerous medical colleges, which are now conferring their diplomas which might be termed to a great extent, worthless—upon graduates equally worthless.

In an "addenda" to this able and lengthy article, the writer gives a brief sketch of the requirements in Prussia and France, before a diploma in medicine will be granted, which contrasts strongly indeed with the "quick and easy" manner in which "doctors" are "manufactured" now a days, in but too many of our schools. In Prussia, students are not allowed to matriculate in medicine, until they shall have passed a rigid examination in the ancient and modern languages, general literature, and the natural sciences, "before a commission consisting of Government and Institute officers." After matriculation they are compelled to study for four years, of two terms each, making in all eight sessions or courses. After the fourth and before the sixth session, they are required to pass a satisfactory examination before entering upon the theoretical and practical part of the science. At the close of the eighth session, the *examen rigorosem* is undergone; a thesis in Latin must be written, and a discussion sustained in the same language, on some medical subject, in the presence of the professors and the public. The successful candidate is then graduated M. D.; but before he is permitted to practice his profession, he is required to pass an examination—*Staats*

examen,—by the state medical authorities, when if successful he receives his licenciate.

In France there is no preliminary examination, and no recitations. Any student can attend the *École de Medicine* as long as he chooses, but when he presents himself for graduation, his general education and professional knowledge and ability are tested by a most rigid examination. If successful he then appears before the *concours* where he is subjected to a most rigid examination—theoretical and practical in all branches of the science, by a dozen or more of the *elite* of the profession, when "his case is balloted on and decision rendered according to merit."

In conclusion the writer says:

Without any egotism, I would state, that as far back as the year 1859, shortly after I had graduated, and when I was deeply impressed with the need of a more exalted medical standard, I advocated among my professional friends the following:

1st. A preliminary examination to determine if the candidate had brain enough to study medicine.

2d. The lengthening of college terms.

3d. Daily oral examinations, at every sacrifice.

4th. A system of merits and demerits; and regulations which would enforce attendance on lectures on penalty of prompt dismissal.

5th. The founding, by the Government, of a Central Medical *Examining* College, to be located in Washington City, with officers selected and salaried by Government. Of course such an institution could not suffer from the evils of competition.

Before the Faculty, en masse, of this Institution, the graduates of every College in the country should be compelled to appear, and receive a license, or not, to practice medicine, according to the decision of said Faculty.

I was laughed at for my chimerical ideas, *so called*, by one and all. But in this latter day, all of us rejoice that there are, at least, dawnings of a brighter day breaking for the profession; and when such men as GROSS, of the "Jefferson," and STILLÉ, of the "University," acknowledged luminaries in our medical galaxy, espouse the cause which this article advocates, can we be despondent? To these two Gentlemen, with every sentiment of respect, the Author begs leave to dedicate this Paper.

We regret that want of space, precluded our laying the whole of this excellent article before our readers, instead

of an epitome of it. The writer has evidently given the subject serious consideration, and strikes boldly and fearlessly at what he believes to be the root of the evil—the course pursued by medical colleges, in pandering for popularity and pecuniary success, at the sacrifice of the honor and dignity of our noble profession, to say nothing of the cruel sacrifice of life and health, that is constantly being made by ignorant, unqualified men, who nevertheless have "got a diploma." We believe that so long as colleges continue to "make doctors" to make money thereby, the only way to eradicate this crying evil of the profession, and outrage on the people, is to ignore the value of diplomas, and require every one, as is done in France and Prussia, and in our Army and Navy, regardless of diplomas, to undergo a satisfactory examination before a properly constituted "board of examiners," before being licensed or permitted to practice his profession. If government finds it necessary to adopt this method, to protect the lives and health of soldiers, are not women and children, and the mass of our people worthy of like protection. We certainly think this matter worthy the consideration of the intelligent members of the profession, our legislature, and the people themselves.

CASE OF SCROTAL ANASARCA, FOLLOWED BY EXTENSIVE SLOUGHING, AND SUBSEQUENT RECOVERY. Reported by Dr. WOOD, House Physician, St. Louis Hospital.

James Fry, aet. 38, native of Ireland—Admitted October 5th, 1867.

About two weeks previous to admission, the patient had Bilious Fever. He was convalescing from this about three days, when he noticed a swelling of his feet. About eight days afterwards, there was ansarca of the lower limbs and

of the scrotum. The scrotum was enlarged to such an extent that its long diameter was at least six inches.

On the third of October, the scrotum burst beneath the right testicle, and a considerable quantity of fluid escaped. For about five days subsequently, serum oozed freely from the scrotum, and proportionably the anasarca disappeared. The scrotum then commenced sloughing, and when admitted, the entire right half of the scrotum, and the anterior part of the left half were destroyed, as were also the tunics of the right testicle. The patient's general health was good. The treatment consisted in daily washing the sloughing parts, with water medicated with Labarraque's solution.

October 11th. There has been considerable hemorrhage from the right spermatic artery, the coats of which had ulcerated. The hemorrhage commenced about five o'clock in the morning, and for fear of disturbing some-one, the patient imprudently allowed the artery to bleed for three hours, instead of sending promptly for medical aid. As soon as the hemorrhage was discovered, the ligation of the artery was attempted; but at every attempt the walls of the vessel yielded on tightening the ligature. The hemorrhage was then arrested by the application of a forceps, having its two blades sufficiently approximated by a ligature. On the second day afterwards the forceps was removed, and no more hemorrhage took place.

October 14th. The gangrene has ceased and the parts are commencing to heal by granulation.

December 1st. Up to present date cold water dressings have been applied to the scrotum. Discontinued to-day.

December 9th. Granulation being too prolific, used every other day the solid nitrate of silver.

December 14th. Scrotum requires no further treatment. It is about one-half its original size, otherwise looks in good condition. The patient is well satisfied with the result.

From the history of this case we learn what an excellent surgeon Nature is; and how with very little assistance she has accomplished what was hardly to have been expected.

Fifth Lecture on Pathological Anatomy. Delivered on the 13th of September, 1867, to the Medical Profession of St. Louis, by A. Hammer, M. D., Prof. of Surgery, Ophthalmology and Pathological Anatomy in the Humboldt Medical College of St. Louis.

Gentlemen—

At our last lecture we considered the different varieties of cartilage. We have said that this is but a form of connective tissue. The truth of this will become more obvious when we come to treat of another form of this same structure, the osseas tissue.

To-day we pass on to mucous tissue, the lowest, no doubt, of all the forms of connective tissue. It is developed from cells, which are at first spherical, but which may afterwards change into the fusiform or stellate form. In the beginning these cells are suspended in a homogeneous, waterlike fluid, containing mucin. The tissue may now remain in this condition, not undergoing any further change, or the cells may perish and leave nothing but the intercellular substance containing mucin. The latter is the comparative of the vitrious body of the eye. The old view of the anatomical composition of the vitrious body, that was advanced by Bowman and Hannover can therefore no longer be sustained. They believe that the vitrious body contained many fine membranous lamellae, crossing each other at small angles, and that within the segments thus created, the fluid substance of this body was contained. We now know that nó such structure exists.

Another change is the development of mucous tissue, by which the cells become stellate, having two, three, four or

five, or more tubular processes. This transformation is found in a certain structure of the teeth. This structure is at first one of the softest of tissues, and becomes hardened, by which process the cells perish.

Another organ in which we may observe this tissue, is the umbilical cord. The cells in this part become first transformed into stellate cells, with generally two, and sometimes more processes. These offsets are hollow and connect with each other, thus producing a canalicular system, through which the fluid of the cells communicates. Between these cells and canaliculi, we find the same intercellular substance. In this also a change goes on, a dense fibrillation is formed around the cells in longitudinal layers, the cavities between these layers being still filled with intercellular substance containing mucin. This is the composition of the umbilical cord as it is during the first few months. Shortly before birth a change takes place, so that the tubes become less numerous, only two offsets being usually found, still remaining hollow. The intercellular substance becomes more fibrillated than it is at the second or third month. These fibrillæ represent the softest and lowest form of loose connective tissue, and may remain persistant in some localities. There are cells observed in the interspaces of these fibrillae, which are unconnected with any other cells, and which retain their original embryonic form. What is the destiny of these? It is supposed, for many reasons, that these undergo a change so as to exchange their contents for fat granules, and thus become fat cells. This process we meet with frequently in the human body, This loose, fibrous tissue, with fat cells interspersed, has an important beariug, and will be again mentioned when we consider the connective tissue proper.*

We now pass to another tissue, the fatty tissue, which is closely allied to the foregoing. This consists of cells far larger than those usually found in the body, being from 1-100 to 4-1,000

*Recently authors admit another variety of the tissue, the "reticular," which formerly was looked upon as belonging to the connective tissue proper, namely: "Virchow's neuroglia." I shall mention it hereafter.

of a line in diameter. They usually contain only one large fat drop. In this we can not discern the nucleus or nucleolus, as they are masked by the contents. They may be made visible by rupturing the cell by pressure, and allowing the fat to escape, or by the action of ether or boiling alcohol, which dissolve the fat. Fat cells, though spherical in form, assume a polyledric shape when they are abundant, and present a mosaic appearance.

Changes may go on in the fat cells, which may make them entirely different in nature from those above described. Fat consists of three elements, olein, margarine, and stearine. These are held in solution by the olein. If this is not abundant, as after death, we will have an inspissation of the fat resulting in crystals. If heated again these crystals disappear.

Another change is that which takes place principally during starvation. The fat disappears gradually by exosmosis, and its place in the cell is filled by homogeneous serous fluid, forming what are called serous cells.

Fat cells are usually imbedded in soft, formless, intercellular substance, which has been before described, and in these interspaces, filled up by this substance, we find blood vessels very abundant, each cell being surrounded by a vascular loop. The process of nutrition and disintegration is, therefore, very rapid in this tissue. When any tissue suffers in the body, the fatty tissue always suffers first. It is also the one most rapidly repaired for the same reason.

Fat appears almost every where in the body, though in some places more abundantly than in others. It is found in every part of the subcutaneous cellular tissue, excepting in the eyelids. This tissue has, therefore, been called the panniculus adiposus. In this structure it is most abundant at the solé of the foot, the palm of the hand, in the gluteal and manunary regions, in the orbit, and in the neighborhood of the synovial sacs. Internally it is principally found around

the kidneys, capsula adiposa, on the surface of the heart, mesenteria, &c.

We have fat cells formed in various manners. One we have already incidently mentioned, the unconnected cells of mucous tissue being destined for this object. At first only a very small quantity of fat enters the wall, then more and more, until finally the whole cell is filled with one large drop, the original cell contents disappearing in proportion. A similar process may take place in embryonic cells, not connected with mucous tissue. There is another indirect mode, of which we shall have more to say when we consider the osseus tissue. The marrow of the bones contain fat in abundance, being then called myeloid cells. These are the offspring of cartilage cells in the process of ossification. A proliferation takes place in the cartilage cells, by which some of them become stellate, and others remain round, just as in the mucous tissue, and constitute myeloid cells.

There is another mode of formation of fat cells, by which can be seen the propriety of ranking this tissue with the connective tissues. We observe under certain circumstances stellate connective tissue corpuscles becoming finally transformed into fat cells. This occurs by fat entering gradually into the cell, driving the nucleus to the side of the cell; the cell wall is gradually distended by the pressure of the fat until it becomes a perfectly spherical, large fat cell. Between the beginning and end of the process many intermediate stages are observed. Kölliker has observed in the fat of a person suffering from Anasarca, that cells, which had been fat cells, underwent exactly the opposite changes, becoming stellate. Hence we conclude the closest alliance existing between these two tissues.

In regard to the physiology of fatty tissue, it is a bad conductor of heat, fills up otherwise unoccupied spaces, thus contributing to beauty of form. It can also be used in the economy of the system as nutrient material in the absence of other food. A very strange fact is that some persons are natur-

ally predisposed to the formation of fat, while others are the reverse. This can not be accounted for, and seems to be entirely independent of the amount of nutritious material taken into the system.

THE GENERAL CONNECTIVE TISSUE proper, (formerly called cellular, areolar, fibrous tissues,) is one of the most difficult in the body to treat of, because it appears in such a multitude of different forms, and such a great number of varieties, all, however, coinciding in one point on which their classification is based, their development from the same cell, the connective tissue corpuscle. In regard to the development of these tissues it is best to study the mucous tissue, this being the lowest and simplest form. We have between the cells, as in mucous tissue, a homogeneous intercellular substance. Within this intercellular substance the cells may undergo many changes. The cells may project a process on one side or on both, and the development may here stop, constituting a fusiform cell, these processes becoming elongated at the expense of the cell. Again, we may have the same fusiform cells, only with more offsets, constituting the stellate cell, as seen in the mucous tissue. This is what we usually understand by the word of connective tissue corpuscle. We may have many of these cells in the same neighborhood, sending out offsets in every direction, connecting with each other, forming a net work of stellate cells with nuclei and nucleoli, and with tubes connecting them, constituting a canaliculer system. Between these we have a non-specificable intercellular substance, which may undergo many different changes. These corpucles are connected, as we have said before, by hollow tubes. Under certain circumstances these canals may be obliterated by becoming narrow and solidified so that no fluid can circulate in them; the bodies of the cells shrink and become narrow, so that we can not detect the nucleus, and there is only a little increase of bulk to represent the body of the cell. We have merely a thread-like fibre, more or less wav-

ing. This we call an elastic fibre, which has the same origin as connective tissue, with this difference, that the cells and nuclei perish, and the tubes are changed into fibres. We state here, as stated before, that the elastic tissue may also be formed independently of cells.

So much of the formation of connective tissue. We have of this both low and high forms. Among the low forms is the neuroglia. The substance of the brain and spinal marrow were formerly considered as consisting entirely of nervous elements. But this is not true, for they possess low fibrous elements, by which their form is sustained. Another form of this lines the cavities of the brain and spinal marrow. We have connective tissue also in the pulp of the teeth, and in the peri-neurilemma of the fine nerves. A very pecular form exists in the Pàcinian bodies on the extremities of nerves. The nerves terminate in these bodies by a prolongation of the axis cylinder, the body being filled up by a very low form of connective tissue—only on the outside can we discover slight dots indicating the presence of connective tissue corpucles. The same thing can be said of the papillæ of the skin. These, as you know, contain either, a tactile body or blood vessels. The outer wall of the tactile body is made up of the same tissue as that of the Pacinian bodies. Another low form of this tissue, not yet agreed upon, is that found in Remack's fibres, which, by some, are considered to be nervous fibres.

Another peculiar form is that of the pigmentary cells, the connective tissue corpuscles becoming filled with melanine. They present this difference from other connective tissue corpuscles, that their offsets are of larger size. These are found in the choroid membrane of the eye, in connection with the loose, fine fibrillæ of connective tissue forming the stroma in which other structures are imbedded. It also appears in the lamina fusca, in the iris, the color of which depends, to some extent, upon the amount of this pigment.

One of the highest forms of the connective tissue is the

cornea, which has no blood vessels, these encroaching upon the cornea for only half a line or so.

How then is the tissue nourished? If a section of the cornea is made, we find these same connective tissue corpuscles, connected with each other by the canaliculi. Between these corpuscles is the homogenous mass, afterward to be transformed and differentiated, so as to become broad, ribbon-like transparent fibres. The nutrition takes place through the canaliculi. Formerly anatomists assumed the presence of vasa serosa, too small to admit blood corpuscles. Now, we know that what was supposed to be accomplished by these vasa serosa is done by the canaliculi.

We now will consider another form, that which was formerly called fibrous tissue. This appears under the eye, fibrillated with no apparent cells, and may, therefore, be considsidered to be a differentiated intercellular substance. Mr. Beale states that all fibrous tissue is developed from cells, thus adopting the view of Miller, advanced fifteen years ago, and long since renounced by histologists as false. He holds that the offsets of the connective tissue cells, divide and split up into the bundles of fibrillæ which compose this tissue. We observe, however, under the microscope, at certain points upon these fibrillæ, which are closely connected with each other, fusiform cells, which are merely super-imposed upon the fibrous structure, and which may be removed, leaving the fibrillæ intact. This is sufficient to disprove the theory that these fibrillæ are formed by the dividing of these cells. It is important, therefore, to remember that these bundles of fibrillæ, running parallel so as to apparently form loose membranes, are divisions of the intercellular substance, and not of the connective tissue cells. Here again we meet with different varieties. The areolar, or so called formless tissue, that which was called the "cellular tissue," is one of them. This is found beneath the skin and mucous, and serous membranes. It is called formless on account of its loose connection, serving only as a cushion or bed on which other organs rest.

A second variety of the fibrous tissue, is the "formed," fibrous tissue. This has many subdivisions, the best of which for purposes of examination, is the class of tendons. If a transverse section of a tendon is made, we observe that it is divided by septa into a great number of subdivisions, each of these subdivisions representing a bundle of fibrillæ, lying close and parallel to each other, being separated by small interspaces. The bundles are lined by soft membranous tissue, similar to perimesium. In the interspaces, filled up with loosely connected fibrous tissue, run other organs. We have in fibrous tissue the connective tissue corpuscle. This appears at first in its simplest form. In its further development it sends out tubular offshoots, The tendon is made up of these cells and the soft intercellular substance. The latter divides into the bundles of fibrillæ before described, while the corpuscles lie between these bundles and send their offshoots in every direction, so that the whole tendon is pervaded by a canalicular system. Tendon is scantly furnished with blood vessels, and these do not enter its substance, their nutrient fluids being absorbed by these canaliculi, and thus distributed to the tendon.

Another class of formed fibrous tissue are the ligaments. These are closely allied to and very similar to the tendons, the same description will apply to both, with this exception, that the fibres are not so regularly united, and the bundles not so distinct.

The next variety is that of the fibro-cartilage. When treating of cartilage we stated that fibro-cartilage might be considered either as cartilage in which a fibrous intercellular substance has been developed, or a fibrous tissue, in which cartilage cells have been deposited. It suffices to know that the intercellular substance is of a fibrous nature. The fibres being parallel in a membranous form, with here and there an original cartilage cell.

Another variety of fibrous tissue are the fibrous membranes, of which the sclerotic coat of the eye, the tunica albuginea

of the testis and the dura mater of the brain, are examples. These membranes may consist of two or three different layers connected together, the fibres of each interlacing with the others at different angles. In the sclerotic, for instance, some of the fibres run longitudinally with the eye, from before backwards, while others run transversely in a circular direction, these two larger being interwoven with each other.

The same arrangement holds good in the tunica albuginea, and in the dura mater. Next are the fasciæ. These differ widely among themselves, being either thick or thin, and each fascia being sometimes thick in one part and thin in another. The fibres are not so regularly arranged as in the previous class, though the longitudinal fibres prevail. The fasciæ surround and cover the muscles, each muscle, and even each muscular fibrilla being wrapped in one of the processes of the fascia. Those secondary covering membranes are called "perimesium." The fasciæ serve as a barrier between the muscles and the surrounding organs. If we could, by chemical means, remove all the muscular tissue from a part, we would have remaining a system of tubes, composed of perimesium, representing the exact form of the muscles.

Another variety of the fibrous tissue is the neurilemma. All nerves are surrounded by a membrane of fibrous tissue, similar to that above mentioned. Around the large nerves this is strong and thick, but as it covers the smaller nerves it becomes very thin, and over the smallest it exists only as a low form of connective tissue.

Another variety of the fibrous tissues, is what has been called the tunica nervea. For instance, formerly anatomists spoke of four coats of the stomach, serous, muscular, nervous and mucous. They regarded this third tunic as a network of nerves, forming a distinct membrane, below the mucous membrane. This is an error, as this tissue really consists of a loose fibrous network, arranged in such a manner as to form a membrane, in which other elements are imbedded.

Another variety is formed by the serous membranes, these being firm in structure and lined with cells.

In the cutis we meet with the papillary bodies, the outer parts of which are composed of fibrous tissue. So, in the mucous membranes, is the basement membrane of Henle.

Again, we have the vascular membranes, the pia mater, and the choroid, their basement structure being also made up of fibrous connective tissue. The arrangement of this is beautifully shown in the pia mater.

These, gentlemen, are the various principal varieties of the fibrous tissue, with their various arrangements corresponding to their functions.* Let us, then, drop this part of the subject and proceed to the most important variety of the connective tissue, the osseus tissue.

The bones are the most hard and solid parts of the body, with the exception of the teeth, which are also partly composed of bone. Let us just examine a longitudinal section of dead bone. In it you observe large, dark canals, longitudinal in direction, and more or less parallel. Along the sides of these canals, at regular distances from each other, you observe straight lines, distant from each other about 3-100 or 4-100 of a line. In each of these lines you observe a number of dark, oblong bodies, which have offsets in every direction. Some of these offsets communicate with the canals before mentioned, and others with offsets from similar bodies in the neighborhood. These offsets are tubes communicating with the large canals and with each other. Thus we have a canalicular system throughout the substance of bone. What we have called "dark, oblong bodies," are not solid bodies, but cavities called lacunæ, not filled with calcareous substance, as has been before supposed, but containing within

*The connective tissue, for reasons already alluded to, is doubtless one of the most important in the building of the various organs. Still more importance must be attached to another one of its functions. It plays the part of the Embryonic cells in the adult. Regeneration and new formation is principally depending upon its presence. We may properly call it the persistent embyronic tissue, and we frequently shall have to refer to this fact, when treating on pathology.

its walls regular cells filled with nutrient matter. The large canals which we have mentioned are called Haversian canals. Each one of these is filled by a blood-vessel, upon the wall of which the canaliculi open, but they do not communicate with its cavity, the nutrient fluid being absorbed through the walls into the canaliculi. There are an immense number of these canals in the bony structure. They generally run parallel with each other, but frequently they communicate by means of oblique canals.

The lacunæ are filled by cells, each one being of the exact shape and form of the lacunæ which it occupies, its processes passing into the canaliculi before described. These cells are connective tissue corpuscles. In the intermediate intercellular substance is deposited the calcareous matter, being arranged in concentric layers around the Haversian canals. Between, and partly within these layers, lacunæ are imbedded. These layers are called "the osseus lamellæ." Those encircling the Haversian canals are called special or Haversian lamellæ. Others, encircling the entire thickness of the bone are called general lamellæ. Still another system which surrounds the medullary, or narrow cavity of bones, are called the medullary lamellæ.

On a transverse section of bone we readily observe the cut surfaces of the Haversian canals, surrounded by their lamellæ, forming the centre of a lamellar system, and upon the circular lines of the concentric lamellæ we plainly see the lacunæ sending their processes in every direction.

We will now consider bone as it exists in the living organism. In this structure we have a certain amount of osseous tissue, the long bones possessing also a hollow central canal, filled with fatty substance, embedded in a fine fibro-membranous substance supporting it. This is called the marrow of the bone. On the surface of the bone we observe a finely interwoven elastic, fibrous membrane, highly nervous and vascular, adhering closely to the bone, and connected with it by means of the bloodvessels. This is the periosteum. The middle or

shaft of a long bone is called the diaphisis, consisting of very firm, compact tissue, with the medullary or marrow canal in the center. In the extremities, called the epiphyses, the arrangement differs, the osseous structure being cancellated and much less dense. On the extremities of the epiphyses another tissue is found, consisting of persistent cartilage, which covers the articular extremity of the bone. Thus we have bone cells, and calcareous substance, periosteum, fat cells, vessels and nerves and cartilage structure, constituting bone as an organ. We have already stated that each Haversian canal was filled by a bloodvessel, from which the nutrient fluid is conducted into the osseous tissue by means of small membranous tubes, the canaliculi, connected with the lucunae. By this system the bone is nourished. This is not difficult to be understood. But there are other questions connected with the development of bone, which are very important in a pathological point of view. The osseus tissue does not spring directly from cartilage cells, but has first to undergo a complicated process of development. In the embryonic structure we have, as the origin of bones, either cartilage, or fibro-membranous tissue, though by far the greater number of bones are developed from cartilage, constituting, as we have before mentioned, the primordial skeleton, and but few are developed from the fibro-membranous or fibro-cartilaginous tissue. We have already mentioned the two views which may be taken in regard to the nature of this fibro-cartilagenous tissue. All bones are developed from cartilage with the following exceptions: the flat bones of the skull, almost all bones of the face and the clavicle. Up to a certain period in fœtal life, all the bones consist of cartilage. Let us now see how from this tissue bone is formed.

It was formerly supposed by anatomists that bone was formed from cartilage by the mere deposit of calcareous

substance* in the cartilaginous tissue. This is by no means true, though at a certain period such a deposit does take place. But this is not identical with ossification, and consists merely of a calcification, and if by the use of certain acids we remove all the calcareous matter, we have only cartilage left. Hence it is not bone that is formed.

In the temporary cartilage there is no medullary cavity this occurring later in its development. In the beginning of the process we have only the cartilage cells and the uniform, homogeneous, transparent intercellular substance, constituting hyaline cartilage, the cells being generally interspersed in the intercellular substance, each one having a secondary membrane, though as yet not very well marked. A proliferation of these cells then goes on, a subdivision by endogenous generation. These new cells then assume a peculiar aggregation, arranging themselves in longitudinal rows, the long diameter of each cell usually being in its transverse diameter. This proliferation goes on until there is scarcely any intercellular substance left. After this the process of calcification commences. Calcareous matter is deposited in the intercellular substance around these rows of cells, being hard and dense and completely surrounding the cells. Next, these same cells, which are enclosed and imbedded in the calcareous deposit, undergo another process of proliferation. by which, in each of these cells a number of other cells are found, being of a lower order of formation, round, small, and containing a nucleus and nucleolus. These are contained in the cavities of the preceding cells. At this point a discrepancy in the observation of authors occurs, and we shall only aim to give such facts as we know to be true. A melting process now takes place, by

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*Beale still advocates this view. He considers the lacuner and canalicular system to be the direct offsprings of the cartilage cells, and as the effect of mechanical pressure on the part of the calcareous substance upon the soft tissue. With him there are no bone cells, and no canaliculi; they are but spaces without any walls, and filled with "germinal matter." His attempt to ridicule Virchow for the admission of a regular canaliculated system of bone cells prior to true ossification, is really puerile. It is inconceivable for him that the processes of the bone cells should have so much sense as to meet each other and to connect. Strange that just he raises such an objection! Has he already forgotten the creation of his own imagination—his 'immaterial agency? Or does he finally become distrustful of his own God?

which the calcareous deposit is reabsorbed. The intercellular substance which remains is, however, different from that which existed before the calcification. Before this, on boiling it yielded chondrin, now it yields gluten or gelatin. It is now, therefore, a different structure. As soon as the calcareous deposit with which the intercellular substance of the original cartilage cells was impregnated, is removed, a canal is formed, all the little cells before contained in the cavities of the cartilage cells are set free, the canal or large cavity, called marrow cavity being formed by the breaking down and melting of the secondary membranes or intercellular substance of the cartilage cells. These cells thus set free, though the direct descendants of the cartilage cells, are indifferent in their nature, and have received the name of marrow cells. You will hereafter learn wonderful facts in regard to these cells. The canal thus formed is the beginning of the Haversian canal. These cells which fill it undergo many wonderful metamorphoses. The discovery of their nature is one of the greatest acquirements of modern science, and has led to the discovery of the rule of the substitution of one tissue for another. These cells are capable of being developed in many different ways. They may remain round, become filled with fat and constitute fat cells. They may receive one, two, three or more prolongations and become connective tissue corpuscles, or they may send out so many prolongations as to form the bone cells which are contained within the lacunae. Others, by aggregation may form the blood-vessels which occupy the Haversian canals. Others may aggregate themselves into nerves, &c. They may also become cartilage cells. We thus see of what wonderful transformations these cells are capable. These cells are identical in microscopic appearance with the granulation cells, formed in a healing wound, and this fact serves to explain certain pathological phenomena to which we shall hereafter refer.

The bone is now formed in these "marrow canals" in

the following manner. Some of the marrow cells aggregate in the centre of the canal and form a bloodvessel. Others near the boundary are transformed into bone cells, possessing the numerous processes which constitute the canaliculi. These cells are arranged in concentric layers, forming cylindrical tubes, which surround the Haversian canals. Between these layers, the osseous intercellular substance is interposed, which, after having become impregnated with calcareous matter, then represents the lamellæ, already described. This process takes place throughout the substance of the cartilage structure, and these canals lie very closely to each other, every one being surrounded by a special lamellar system. This, therefore, explains the microscopic appearance which you have observed at the last lecture. Thus you see that bone is not the immediate descendant of cartilage, but that at first there is a calcification of the intercellular substance, then a liquifaction, the intercellular substance being in the mean while changed from a chondrin producing substance into a gluten producing substance, then the arrangement of the cartilage cells in longitudinal rows and their proliferation terminating in the formation of marrow cells. These being set free in the canal and differentiating as described, the second calcification occurs, which process in its totality is called ossification.

Every long bone grows in two directions, length and thickness. The processes by which this is accomplished are different. The bone grows in length by means of its cartilaginous extremities, the cartilage cells proliferating by endogenous generation, and becoming gradually ossified with the shaft. Thus, as it has been expressed by Virchow, it depends upon the amount of this cartilage whether we become men or remain dwarfs.

The growth of bone in thickness depends, not upon cartilage, but upon the periosteum. This I have already mentioned to you as a highly nervous and vascular fibrous membrane, containing connective tissue corpuscles. During the

growth of bone. this membrane becomes swelled on its inner surface, soft and more highly vascular, and when placed under the microscope we detect on its inner surface a multitude of the small round cells which we have before described as marrow cells. In a section of the membrane we observe the proliferating process in its center, and still further outward we observe the perfect connective tissue corpuscles. Thus we may see, in the same membrane, the process in all its stages. These indifferent cells may either become first cartilage, which is very rare, or may at once, as is the rule, be transformed into bone cells. These cells now arrange themselves in longitudinal rows, with the intercellular substance deposited between, in the same manner as when derived from cartilage. This process explains facts in pathology which would otherwise be very dark. To these we will hereafter refer. After the Haversian canals have been formed in this manner, and the osseous structure constituting the special or Haversian lamellæ has been formed, then the general lamellæ, around the entire bone structure is formed from this membrane.

There are many other interesting facts which might be stated in regard to the minute structure and development of bone, especially those bones which are developed from fibrous membranes, but there are only slight differences between these and those derived from cartilage, and we must hurry on to other subjects.

The teeth are closely allied to bone in structure, a part of them, in fact, being bone. They are composed of three distinct parts or tissues. 1st. The tooth tissue proper or dentine. 2d. The enamel, and 3d, the cement or osseus tissue. In the tooth we discriminate three divisions. 1st. The crown, above the gums, 2d, the neck, encircled by the gums, and 3d, the root, which is inserted into the alveolar fossa. Each tooth contains a cavity of conical shape, open at the bottom for the transmission of vessels and nerves. This cavity is filled with a soft, fine tissue, the pulp, highly vascular and

nervous, containing so-called mucous cells. The hard, thin bonelike substance immediately around this cavity is the dentine. This is covered on the top and root of the tooth by two different substances. The top or crown is covered by enamel, consisting almost entirely of mineral substances. From the neck down to the end of the tooth, it is covered by a thin layer of osseous tissue, called cement. This is covered by periosteum, which is adherent to the alveoli. In the foramen in the root enter an artery, a vein and a nerve. On these and on the pulp, the tooth depends for its nutrition. From the cavity eminate a number of fine canaliculi, through which the nutrient material is carried to the substance of the tooth. There are no lacunae in the tooth structure, except at the bottom, where the true osseus structure exists. The enamel is made up of prisms, generally hexagonal, which give to it a tessellated appearance in a transverse section.

I would like to say more about the minute structure of the teeth, but, you know, time does not permit me to do so.

EDITORIAL.

We furnish to our readers in the present number of the ARCHIVES, a copy of the Revised Constitution of the Missouri State Medical Association, as adopted by that body at their late meeting in this city. We also lay before them an epitome, of a very forcible article from the pen of Dr. Wm. Mason Turner of Philadelphia, on the "Elevation of the Standard of Medical Education," and an article in extenso, from the *Medical Record*, on "The Proposed Changes in our College system." To both of these we would call the attention of our readers, and the profession generally, both favoring and opposed to the "proposed changes," and the "reform." The paper of Dr. Turner, takes strong grounds in favor of Educational Reform, and he does not hesitate to state in plain terms, what he believes to be the true cause of the exceedingly low standard of education,—general and scientific—in the profession, and suggests remedies for this notoriously extended and still growing evil. He states *plain truths*, in a *plain manner*, and deals heavy blows, where he deems them most needed, without manifestation of either fear or favor. The whole article evinces careful thought upon the subject, and is well worthy of perusal, even, and I may say, *especially*, by those to whom he deals the heaviest blows.

The suggestions of the article from the *Medical Record* should meet with a hearty and prompt response from the teachers of all the schools, that have at heart, the interest, honor, and reputation of our noble profession, and the object aimed at, should receive the cordial support and encouragement, of every educated and intelligent member of the profession.

We are able also to lay before our readers the result of the labors of the committee, appointed at the late meeting of the Missouri State Medical Association, to elaborate a memorial to be presented to the Missouri State Legislature. Although the memorial is not in all things what we could have desired—and we doubt not, such will be the feelings of many of the profession favoring the movement—it was thought by the committee to be the best that could be done under the circumstances, their object being to draw up such a memorial as would, in their opinion, meet with the least amount of opposition. We believe it is generally conceded to be good policy, when you cannot get just exactly what you want, to secure the next best thing to it, in hopes of securing something still better in the future. To this end then, let all who feel the need of some such move as the one proposed, lend their aid and support to secure the passage of the memorial, and if nothing more, it will serve in the future, as the entering wedge, for securing such further legislation, as subsequent experience may demonstrate to be necessary.

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Dental Cosmos.
Detroit Review.
Dublin Quarterly Journal of Med. Sciences—Dublin, Ireland.
Galveston Medical Journal.
Journal of Applied Chemistry.
Journal de Medicine Mental—Paris, France.

Klinische Monatsblatter, fur Augenheilkunds Herausgegeben von D. W. Zehender, Erlagen.
Leavenworth Medical Herald.
London Lancet.
Le Mouvement Medical—Paris, France.
L' Evenement Medical—Paris, France.
Medical News and Library.
Medical and Surgical Reporter.
Medical Union—London, England.
Medical Press and Circular—Dublin, Ireland.
Medical Gazette.
New York Medical Record.
New York Medical Journal.
New Orleans Journal of Medicine.
Nashville Medical Journal.
Opthalmic Review—London, England.
Pacific Medical and Surgical Journal.
Quarterly Journal of Psychological Medicine.
Revue Medecal—Paris, France.
Revue de Therapeutique Medico Chirurgical—Paris, France.
Richmond Medical Journal.
St. Louis Medical and Surgical Journal.
St. Louis Medical Reporter.
Southern Medical and Surgical Journal.
Tribune Medical—Paris, France.
Western Journal of Medicine.

CONSTITUTION OF THE MEDICAL ASSOCIATION OF THE STATE OF MISSOURI.

ARTICLE I.

Title of the Association.

SEC. 1. This institution shall be styled "*The Medical Association of the State of Missouri.*"

ARTICLE II.

Members.

SEC. 1. The members of this Association shall consist of delegates from permanently organized local medical societies, permanent members, and members by invitation, who shall collectively represent and have cognizance of the common interests of the medical profession in the State of Missouri.

Sec. 2. Each delegate from a local society shall hold his appointment for one year, until another is appointed to succeed him, and shall participate in all the business and affairs of the Association.

Sec. 3. Each local society shall have the privilege of sending to this Association one delegate for every five of its regular resident members, and one for every additional fraction of half that number of its members.

Sec. 4. *Permanent Members.*—Every member of the Convention adopting this Constitution, and all those who may hereafter serve in the capacity of delegates to the Association, together with such other persons as may receive the appointment by unanimous vote, shall be entitled to permanent membership.

Sec. 5. Permanent members shall at all times be privileged to attend the meetings and participate in the affairs of the Association, so long as they shall continue to conform to its regulations, but without the right of voting.

Sec. 6. *Members by Invitation* shall consist of practitioners of reputable standing from sections of the State not otherwise represented at the meeting, and of such distinguished strangers and others as may be deemed worthy of the compliment. They shall receive their appointment by vote of the Association upon a motion of some member present, and shall hold their connection with the Association until the close of the annual session at which they were received, during which period they shall be entitled to all the privileges of permanent members.

Sec. 7. Each individual, prior to taking his seat as a member of the Association, must sign this Constitution, inscribing his name and address in full, specifying in what capacity he attends, and, if a delegate, the local society which he represents.

ARTICLE III.

Officers.

Sec. 1. The officers of the Association shall be—a President, five Vice Presidents, two Recording Secretaries, a Corresponding Secretary, and a Treasurer. They shall be nominated by a special committee of seven to be appointed by the Chairman, and shall be elected by a vote of the Association, by ballot, on a general ticket. Each officer shall hold his appointment for one year, beginning with the opening of the annual meeting next succeeding that at which he is elected.

Sec. 2. *The President* shall preside at the meetings, preserve order, give a casting vote in case of a tie, and perform all other duties that custom and parliamentary usage may require.

SEC. 3. *The Vice Presidents*, when called upon, shall assist the President in the performance of his duties, and during the absence, or at the request of the President, one of them shall officiate in his place.

SEC. 4. *The Recording Secretaries* shall record the minutes, and authenticate the proceedings; give due notice of the time of holding the next ensuing meeting, and serve as members of the Committee of Publication. They shall also preserve the archives and unpublished transactions of the Association.

SEC. 5. *The Corresponding Secretary* shall receive all the communications sent to the Association, and shall conduct all the correspondence of the Association, reporting the same at the annual meeting.

SEC. 6. *The Treasurer* shall have immediate charge and management of the funds and property of the Association, and hold them subject to the disposal of the Association. At each annual meeting he shall present a report, setting forth the amount of moneys received, as well as the amount disbursed, and for what purposes.

ARTICLE IV.

Meetings.

SEC. 1. The regular meetings of the Association shall be held annually, in the city of St. Louis, and shall commence on the third Tuesday of April.

ARTICLE V.

Standing Committees.

SEC. 1. The following Standing Committees, each composed of five members, of whom the first named is chairman, shall be nominated and elected, as in the case of officers of the Association, at every annual meeting, for the purpose of preparing and arranging business for each ensuing year, and for carrying into effect the orders of the Association not otherwise assigned—namely:

A Committee on Medical Education;

A Committee on Scientific Communication;

A Committee on Publication;

A Committee of Arrangements.

SEC. 2. *The Committee on Medical Education* shall prepare an annual report on the general condition of medical education in the State of Missouri, as compared with the state of medical education in other States of the Union; noticing the several medical institutions in the State, their course of instruction, the practical requirements for graduation, the modes of examination for conferring degrees, and the reputed number of pupils

and graduates at each during the year, together with such other matters as they may deem worthy of spècial consideration in reference to medical education and the reputable standing of the profession.

SEC. 3. *The Committee on Scientific Communications* shall have charge of all scientific communications made to the Association. It shall be their duty to receive from members the titles of such papers as it may be proposed to offer to the Association, and to take such other measures as may seem to them best adapted to secure interesting original communications, upon scientific subjects connected with medicine, to be read before the Association. They shall also arrange the order in which all scientific communications shall be presented to the Association.

SEC. 4. *The Committee on Publication*, of which the Recording and the Corresponding Secretaries shall constitute a part, shall have charge of preparing for the press and of publishing and distributing such of the proceedings, transactions and memoirs of the Association as may be ordered to be published.

SEC. 5. *The Committee of Arrangements* shall provide suitable accommodations for the Annual Meeting, and shall examine and report upon the credentials of membership.

ARTICLE VI.

Voluntary Contributions.

SEC. 1. All Scientific Communications shall be offered to the Association through the *Committee on Scientific Communications*, which Committee, acting together with the *Committee on Publication*, shall make a selection, from those communications, of such as they may consider worthy of publication, and shall publish them in the proceedings of the Association.

ARTICLE VII.

Funds and Appropriations.

SEC. 1. The funds of the Association shall be raised, by an annual tax of three dollars on each delegate in attendance, on the payment of which he shall be entitled to a copy of all the publications for the year; by individual voluntary contributions, and by the sale of its publications.

SEC. 2. The funds thus raised may be appropriated for defraying the expenses of the annual meetings; for publishing the proceedings, memoirs and transactions of the Association; for enabling the standing committees to fulfill their respective duties, conduct their correspondence, and procure the material for the completion of their stated annual reports; for the encouragement of scientific investigations, by prizes and awards of merit, and for such other purposes as the Association may from time to time direct.

ARTICLE VIII.

Code of Ethics.

SEC. 1. The code of Medical Ethics of the *American Medical Association* is hereby adopted by this Association, and shall have the full force and effect of any Article of this Constitution.

ARTICLE IX.

Discipline of Members.

SEC. 1. In case of a violation of the provisions of the Constitution, or of the Code of Ethics adopted by this Association, and upon the fact being established to the satisfaction of a majority of the members in attendance at the meeting, the individual or individuals thus offending, shall be excommunicated and deprived of all the privileges of membership.

SE... 2. The Association shall also have jurisdiction in all cases of appeals taken from auxiliary societies, in which event their decision shall be final.

ARTICLE X.

Amendments and Alterations.

SEC. 1. No amendment or alteration shall be made in any of the articles of this Constitution, except at the annual meeting next subsequent to that at which such alteration or amendment may have been proposed, and then only by the concurrence of two-thirds of the members in attendance.

ORDER OF BUSINESS.

The following order of business is adopted as a By-Law of the Association, which shall at all times be subject to the vote of a majority of the members in attendance at the meeting, and, except when temporarily suspended, shall be as follows:

1. The organization of the meeting.
2. Report of the *Committee of Arrangements* on the credentials of members, after the latter have registered their names.
3. The calling of the Roll.
4. The reading of Minutes.
5. The reception of members not present at the opening of the meeting, and the reading of notes from absentees.
6. Reception of *members by invitation.*
7. The reading and consideration of the stated annual reports from the *Standing Committees.*

8. Reading and discussion of *Scientific Communications* as arranged by the *Committee on Scientific Communications*.
9. The choice of *permanent members* by vote.
10. The *election of Officers for the ensuing year*.
11. Resolutions introducing new business and instructions to the *Standing Committees*.
12. Unfinished and miscellaneous business.
13. Adjournment.

MISCELLANEOUS.

Memorial from the State Medical Association of Missouri, to the Legislature of the State of Missouri.

The undersigned, a Committee appointed by the Medical Association of the State of Missouri in its last Annual Meeting, held in St. Louis, on the 10th day of December, 1867, for the purpose of elaborating a Memorial and petition to the Legislature of Missouri, with the view of removing by law, certain evils concerning the Medical profession, and the practice of Medicine,—respectfully beg leave to submit the following, for your immediate consideration and action thereon :

Whereas, It is the permanent duty of every well organized government, to enact such laws and regulations as will best secure and protect the natural rights of every member of Society;

Whereas, Such laws and regulations, adopted in almost every country with the exception of our own, have proven to work most beneficially;

Whereas, The protection of health and life is of paramount importance not only to the individual but also to the welfare and prosperity of the community;

Whereas, It is obvious to all, that a great number of base imposters throughout the State, under the guise of physicians, with and without Diplomas, deceive and rob the credulous not only of money, but even of health and life;

And Whereas, A thorough general and Medical Education, is the only reliable means to eradicate charlatanism, and imposition. Therefore we respectfully petition, for the enactment of a law to the following effect:

1, That *hereafter* each and every person, graduate of a Medical School or not, (midwives included), before being permitted to engage in the practice of medicine in any of its branches in the State of Missouri, shall be required to give ample satisfactory evidence of qualification before a State Board of Medical Examiners.

2, This Board of Examiners, to consist of five (5) members and to be permanently located in the City of St. Louis, shall be appointed by the Medical Association of the State, and the governor of the State, and hold their offices for four (4) years in succession, and until their successors are appointed.

3, The duty of said Board shall be to examine *carefully* and *rigorously* every one applying for examination, and if found worthy and competent, to grant a certificate to the same.

4, Persons applying for examination, may have the privilege of using the German or French language instead of the English.

5, Any person, violating this enactment, shall not be permitted to collect any fee by law,—and shall be fined for each and every offense and suffer imprisonment until said fine be paid.

6, Every existing law, conflicting with the foregoing, shall be null and void.

7, Nothing in this shall be so construed, as to make it applicable to those, who are already engaged in the practice of medicine, prior to its passage.

All of which is respectfully submitted.

A. HAMMER, M. D., CHAIRMAN.
M. L. LINTON, M. D.,
JAS. R. WASHINGTON, M. D.,
JAS. M. LEETE, M. D.,
DRAKE McDOWELL, M. D.

THE PROPOSED CHANGES IN OUR COLLEGE SYSTEM.—A circular has recently been addressed to the various Colleges, asking for a concerted action on their part upon the several propositions offered by the late Teachers' Convention in Cincinnati. The committee that represents this association, having a more or less permanent character, are perfectly competent to present the matter officially before the different Medical Schools, and in that light this last appeal for reform should undoubtedly be viewed.

They take for their basis of action the resolutions passed not only by the Convention but by the American Medical Association; and as our readers are already familiar with that docu-

ment in detail, it is unnecessary here to do more than give an outline of the scheme. In brief, then, the changes proposed may be summed up under four heads: First, a positive standard of preliminary education; secondly, a longer time in which to acquire a knowledge of the various branches of Medical Science and Practice; thirdly, a systematic and successive order of studies for the student; and lastly, a certain amount of direct clinical instruction in a public hospital, as a part of the senior course.

We have from time to time taken occasion, in our discussion of various matters connected with Medical Education, to urge the adoption of the suggestions therein contained, severally and collectively, and to endorse *in toto* the action of that body. We have not only been of this opinion, but have been ready to go a step or two farther in upholding measures that, under the present system, would seem almost impracticable. But this is by the way.

The objects of the circular which is before us are not only intended to explain away many of the arguments which have seemingly been brought forward by some of the schools against the resolutions referred to, but also to fix a period to the present system of medical instruction. Its first intention has been, to our way of thinking, well carried out, and we have only to hope that its second object will be also attained in an equally satisfactory manner.

In reference to the question of preliminary education we have fully expressed our views, and the plan which we took occasion to suggest was the examination of the students by some competent persons other than the faculty, in order that no plea that any unfairness or partiality could be brought forward. This at the time we believed was practicable, and we are still of the same opinion. There may be some other means adopted to insure this end, but this matters not, so long as the spirit of the resolution is carried out. The committee have, with some show of policy, merely presented the necessity for the adoption of some feasible means without suggesting anything definite. This is hardly the wisest course that could be pursued, inasmuch as it is advisable to form as a responsible body a distinct platform upon which all points at issue must be directly settled. A failure to distinctly define the manner in which these preliminary examinations should be carried on may still leave the whole question open, a prey to misconceptions and to the temptation of practically ignoring the subject altogether.

On the other proposed changes the committee is more to the point. In regard to the increase in the members of each college faculty good reasons are given. The contemplation is to give four lectures per day to each class throughout the whole college

term of six months. We cannot see how this can be objected to by any faculty. The necessary increase of their members will so divide the labor as that each member can perform his duty to himself and to the students. To the supposed decrease in the income of each professor by the adoption of this course the committee have offered a satisfactory and conclusive answer. The increase in the faculty they assert is amply compensated for pecuniarily by the requirement that each student shall pay full fees for three courses of lectures instead of two. With this the teachers can find no fault, and the student will not be liable to demur, especially when no choice is left him in order that he may be sure of his diploma in the end. The increased expense for the whole term will not be felt any more for the third year than for the two previous ones, while in the end the increased outlay on his part brings him a richer premium in the allowance of extra time to benefit by the instruction which he receives.

The section referring to the branches to be taught during each term was simply for the purpose of naming a definite course to be pursued by each college, so that such a uniformity in the general system might be obtained as would allow students of different classes to transfer themselves to different colleges without occasioning confusion.

In order to obviate embarrassment in making the change from the present system of college instruction to the one proposed, the committee prudently suggest "that all students who have so nearly completed their period of study at the time fixed for making the change that an attendance on an additional course would render them eligible to graduation, should be allowed to complete their course by attending the Senior department under the new arrangement; while all who are in the first half of their period of study should be subject to the new arrangement in full." This proposition is an eminently proper one, and should effectually do away with the principal obstacle to the speedy carrying out of the new plan.

The time set for the inauguration of these changes is during the winter term of 1868–9, and it strikes us that there is ample opportunity offered to all the colleges to discuss the matter by answers to the following questions by the committee:

1st. Do your faculty, together with the governing authority of your College, approve of the several propositions as a whole?

2d. If you do not approve of the plan of revision as a whole, what changes would you suggest?

3d. If you approve of the plan as a whole, or of all its essential features, will your College be ready to adopt it practically, and issue your Annual Announcement for the College term of 1868–9, in accordance therewith; provided all the principal Medical Colleges in this country (or at least those in the cities

of Boston, New York, Philadelphia, Baltimore, Richmond, Charleston, New Orleans, Louisville, Cincinnati, St. Louis, Chicago, Buffalo, and Albany) will agree to do the same at the same time.

These answers are to be addressed to the Chairman, Dr. N. S. Davis, of Chicago. We hope that every respectable Medical College in the land will consider it a bounden duty to give the subjects referred to, the fullest consideration, and be prepared when the time comes to agree, if not entirely upon the plan as set forth, at least sufficiently so to insure that uniformity of action which should crowd out every element but honorable competition and an earnest desire to raise the standard of Medical Education.

There is no reason why a response should not be received from every College by the committee before the first of March next, when opportunities would be given to call another Convention of Medical Teachers, and have a report presented to them in due form.

[From the Chicago Medical Journal.]

INTERNATIONAL MEDICAL CONGRESS.—Convened at Paris, August 16th 1867, at 2 o'clock P. M.

The Medical Congress opened amidst a compact crowd of physicians, French and foreign. The grand amphitheatre of l'Ecole de Medicin was completely filled, its capacity being 1000. The opening address of the President, M. Bouillaud, full of souvenirs of the past and hopes for the future, was heartily received. We give a few extracts:

"International Congresses would certainly be able to become very efficacious in furthering the progress of science, and in binding the profession in fraternal bonds, if they could be able to enter into the manners and habitudes of the different peoples. Our neighbors across the sea, more habituated than we to reunions, perhaps understand better the art of feasting their guests; but, in all things, an apprenticeship is necessary."

"The utility of International Congresses should be confirmed by the results, and not admitted without question. Until then, a great many will hesitate, and will not bring in their contingent of knowledge and good will; thereby diminishing the time and chances of success.

"Medical Congresses will not be able to offer all their advantages, until they are constituted as grand assizes; where all new ideas and all questions will be debated without inutile phraseology, by all those who wish to labor actively in the progress of science."

"It is evidently necessary that all the facts in appearance contradictory, all those that throw doubt upon the subject un-

der discussion, may be exposed by the observers themselves, and in presence of one another. This cannot be done in an academy or in a society of limited numbers, but it is possible in a world's congress of enlightened, disingenuous, scientific men."

"We hope, then, for more international congresses in the future—grand assemblages which may be able to vivify the intelligences, reverse the systems of hazard, and make known to each of the peoples the doctrine of its neighbors."

After his allocution, M. Bouillaud was nominated by acclamation for Permanent President of the Congress, and the bureau was completed by the choice of the following:

Foreign Vice-Presidents.—Profs. Virchow, Berlin; Hallo, Prague; Lambi, Karkoff; Meric, London; Palasciano, Naples; Wleminckz, Bruxelles.

French Vice-Presidents.—Prof. Berare, Montpelier; Prof. Gintrac, Bordeaux; Prof. Baron Larrey, Paris; Dr. Ricord, Paris; Prof. Roux, Toulon; Prof. Tessier, Lyons.

Secretary-General.—Dr. Jaccoud.

Treasurer.—Dr. Vidal.

FIRST QUESTION.—*Anatomy, Pathology, and Physiology of Tubercle.*

M. Villemin, Val du Grace, prefaced his paper with the remark, that at first he took part with the school of Virchow, in regarding only as true tuberculosis the gray granulations, semi-transparent, etc., and distinguished from this, what this school has named pneumonia caseous. But now he viewed all these alterations as tuberculosis of the same nature.

Here is an extract from his paper on the subject:—One can represent a tubercular node by three concentric zones, corresponding to three different degrees in the evolution of the elements which concur in its formation. One external zone, where cells are seen already more voluminous than those of normal tissue, and in which appears many nuclei; a middle zone, represented by element of various dimensions, more or less compressed, one against the other, and containing a variable number of nuclei—this latter is the "proliferant zone;" finally, a central zone, where are found accumulated nuclei and little cells, similar to globules of pus in inflammation, the product final of the multiplication of elements, notwithstanding, one not rarely meets with cells of larger dimensions in this situation.

The retrogressive metamorphosis of tubercle presents itself under various aspects. In certain cases, it assumes the condition of fatty granulations, very small, and relatively rare, reflecting light brilliantly, and having a shriveled and dry appearance. It is a sort of mummyfication, according to Mr. Kuss. At other times, the fatty globules are more voluminous

and more abundant. We think that these two forms of retrogressive transformation tends towards two different terminations. The first seems to terminate with greater facility in cretification, and the second in softening.

Now and then, one may observe granulations which contain hardly any elements of small dimensions at their centre, and which are composed of cells of variable size, in the way of active multiplication, and which are destroyed by retrograde metamorphoses before the proliferation may have arrived at its final term. A section of a nodosity of this species seems to be constituted of elements similar to those spoken of as constituting the middle zone. There is a predominance of voluminous cells upon the nuclei and small cells, whilst, on the contrary, in the granulation type, the elements of large dimensions are rare in the central part, and even rare in the middle zone.

In the granulation type, necrobiosis, also, sometimes attacks the large cells in the way of proliferation, which tends to the obliteration of the vessels by the encroachment of the nodosities one upon the other. These cellules, thus deprived of nutriment, die; and such is, without doubt, the cause of the rapid march of certain cases of phthisis.

In tuberculization of the lungs, one encounters many granulations which have their seat in the connective tissue of the inter-lobular substance, but the greatest number are found in the vesicles themselves which are found filled with cells in the way of multiplication. In this instance, we have considered these contents of the vesicles as derived from the epithelium of the lining membrane, and distinct from tubercular granulations, but we have abandoned this interpretation. We are now assured that the partitions which separate pulmonary vesicles are not homogeneous, but that they contain in their thickness a proper cellular element which is common to connective tissue which may be the seat of granulation, as in other situations, for example, inter-lobular tissue. Respecting the existence of an epithelium on the surfaces of the pulmonary vesicles, we consider it problematical.

In the lungs, tubercular granulations present, as elsewhere, the largest cells towards the circumference, they are there even sometimes very large, containing, sometimes, ten or fifteen nuclei, which proliferate in their turn. The areolæ are filled by this proliferation, and often the necrobiosis seizes at one time all the elements, not only those which are small and form the centre of the focus, but those found at the circumference and in a state of proliferation.

This happens always, when the foci are closely aggregated one against the other. Then a section of the part exposes to view only proliferant cells filling more or less completely the

areolæ. It is to this form that has been given the name of caseous pneumonia, tuberculous, epithelial, disseminated chronic, etc., etc.

But these elements proceed, manifestly, from the cell nuclei which are found in the partitions separating the lung vesicles. In tubercles proceeding from serous and mucous membranes, from lymphatic ganglia, the proliferant zone is composed of cells absolutely identical in form, dimensions, and all other characters, with the above. It is but by compression, the one against the other, that they sometimes show plain faces and appear like epithelium, they are never soldered together. Besides, in a connective tissue, the tumefaction and cellular proliferation does not differ from that observed in inflammation. It is only by the final result that the nature of the process can be judged. Inflammation ends in pus or induration; tubercle, in fatty metamorphosis, or in hasty necrobiosis, as in that which is named caseous pneumonia.

If, in this case, one had to do with an inflammatory product simply, and of an epithelial nature throughout, we would not have a suppression of the circulation affected, and the lung, instead of taking on in the end an anæmic aspect and a dry consistence, would be remarkable, on the contrary, for the turgescence and engorgement which characterizes the inflammatory process. (M. Villemin recalled the resemblance of tubercle in its elements to lymphatic tissue, and by its tendency to undergo the caseous degeneration. The granulations of glanders and syphilis also approach each other in their histological elements, aspect, and evolution).

Thus, then, the question of the specific anatomical nature of tubercle ought to be resolved in a negative sense. The specific globule exists not, and the other characters observed in the histologic evolution are not less insufficient. The granulations of glanders, of syphilis, and of tubercle, present themselves as three species of the same genus, and the two first being inoculable, we are asked if the third would not be. The experimentation has responded. In a work soon to be issued, we try to establish the specific nature of tubercle.

Thus, according to M. Villemin, tubercle will be specific respecting its cause and respecting its nature, but not in its products. These are very different from the inflammatory products in their period of termination, and take on sooner the caseous form; on the other hand, they approach the products of glanders and syphilis, both affections being essentially specific and communicable.

Prof. Sangalli, of Pavia, remarked to the effect that he also assimilated the gray granulations to caseous pneumonia. He found in both the same elements, they succeed in the same

order; but that which struck him principally, was the affinity between tuberculosis and inflammation. He attributes the production of granulations or the infiltration of tubercle as due to the action of one stimulus, which manifests itself at first by hyperæmia. Besides, he would observe that tubercular affections can assume different forms, according to the organ attacked; thus, in the uterus, they can give origin to new organic fibres. Here, the Doctor presented a lengthy statistical table, which we omit.

Prof. Crocq, of Bruxelles, remarked, that we find but one type to which we can refer with precision, the cells of gray granulation, it is found in the lymph cells, the lymphatic ganglions, the white blood corpuscles, and in those of mucus which are also like pus. That which constitutes the granulations of gray tuberculization is, then, leucocytes; that which distinguishes them from this is, above all, the absence of intercellular substance. These leucocytes are small because they are not bathed in any liquid. They have but a single nucleus. These leucocytes recognize as points of departure, the cells of the connective tissue, and also the epithelium. In the first instance, the granulations which are formed are surrounded by a shell of connective tissue, which concurs in giving them consistence and elasticity. These facts, being weighed, throw upon the development of tubercle a general *coup d'œil*, which may enable us to comprehend its relations with other pathological acts of economy.

When one examines an organ in which tuberculization is being developed, one sees points or spots of considerable vascularity. Sometimes, the centres of these points are already consistent and elastic. These points pass, by insensible transition, into tubercular granulizations which are always surrounded by well developed vascular zones. A microscopic examination, brings to view numerous and voluminous vessels, which ramify on the surface, and, by position, seem to penetrate the interior of the tubercular mass.

Injection, infiltration, gelatiniform while gray, etc., these are the phenomena observed at the seat of tuberculization, and these coincide with those which preside in inflammation, so that one cannot well describe one without the other. Vascularization and repletion of tissues are at first equally seen in both cases. In inflammation, also, the cellular elements of connective tissues become engorged, swollen, and obscure, and at last give birth to new generations of cells, similar to leucocytes. These new cells have four destinations:

1st. They are destroyed and the material reabsorbed.

2d. They are transformed into cells of new connective tissue.

3d. They are changed into a liquid intercellular substance, and constitute pus.

4th. They are subjected to fatty degeneration, and form masses which may sojourn indefinitely in the tissues and impregnate themselves with calcareous salts.

The only difference that one can signalize between the products of tuberculization and inflammation is the smaller volume of the cells of the former—like the leucocyte—their unique nuclei, the absence of intercellular liquid. In fact, we find in the tubercle an enfeebled energy, a formative force less marked than in inflammatory conditions.

The symptoms of tuberculosis, especially those of the lungs confound themselves with chronic phlegmasia, as, for example, pneumonia and bronchitis of slow march. Respecting acute tuberculosis, the nature and the functions of the organ, affected generally throughout its extent, expresses the value of the facts we there encounter. One may distinguish after their seats three different kinds of phlegmasia, *viz.*, lobar, lobular, and, finally, vesicular pneumonia, which may be limited to a single infundibulum, or to a small number of them. There are, also, three forms of tuberculization, which we may, after the preceding, consider as recognizing for a point of departure a pneumonia of special form, which we name tubercular.

Does any one say that tubercle may be the result of a general malady, of an alteration of the blood? No analysis has demonstrated the existence of this; one of the strongest arguments for this idea is hereditary transmission. But it is not the tuberculization itself which is transmitted. I have often examined fœtuses and infants of tuberculous women, but have never with those found tubercles. Only the predisposition is inheritable, that is to say, a certain type of internal structure of tissues which may render them accessible to such pathological phenomena.

From these considerations, it results that tubercle is not a special or specific malady, recognizing for its cause a vice of the blood, but an affection of the same order as inflammation, from which it differs but little. The treatment for tuberculization is none other but that for phlegmasia of the same organ—antiphlogistics, revulsives, and appropriate modifications, applied according to the indications.

The opinions of M. Lebert, as shown in the following extract, were very similar to those of M. Crocq, only they are founded upon experiments more recently made upon animals:

M. Lebert remarked as follows:—"These experiments have been made in my laboratory, with the assistance of my excellent chief of the laboratory, M. le Docteur Wyess. Nevertheless, there being some difference of opinion in the interpretation

of facts in our experiments, I take upon myself the responsibility of these generalities. Our experiments are to the number of forty-five, not counting a large number not finished.

A first series, of eleven, relates to the transmission of the products of disseminated chronic pneumonia, of chronic adenitis, and to the appearance of tuberculosis and tubercular granulations of the lungs. Two experiments relate to my ancient researches upon pyæmia. Two dogs, in which many injections of pus have been made in the veins, have presented, one, recent granulations in the lungs; the other, in the lungs and liver; both offering the structure of tubercules in these granulations. In nine experiments, the product of expectoration and of caverns have been as in the eleven, first injected under the skin. These animals have succumbed to pyæmia or septæmia, and have not presented the granulations of infection. In the twenty-third experiment, a biliary fistula had been established in a dog, the subject of poison by phosphorus. After one week, the dog commenced to cough, and at the autopsy, there appeared recent pulmonary granulations, having the same character as the products of the first experiments, *viz.*, disseminated pulmonary granulations, etc. The twenty-fifth and thirty-fifth, relate to the transmission of divers morbid products of hypertrophied lymphatic glands, of melanoma of the horse, of fibroplastic tumors, of cancroid and cancrous matter. The ten last were made with carbon or with mercury, in the jugular veins. These have been introduced, once, directly in the trachea.

"We commence giving the results of these experiments with the last which are the most simple. The carbon produced little embolons, followed by cellular hyperplasie, little granulations, and even irritation and cell multiplications more extended, alveolare tubular, etc., even extending to the cells of the connective tissue in the inter lobular spaces. The mercury produced, besides, a veritable inflammation of the tunics of both veins and arteries, as I had already proved in 1850. Here we find cellular hyperplasie of the external tunic of the artery, under the form of granulations, or, more diffuse, it may extend a distance along the vessels. In a higher degree, the same action can extend, little by little, forming granulations and indurated inflammatory foci in the way of suppuration, followed by "bronchiectasies" and even caverns.

"In inoculating with morbid products, one observes, in one case, a strong local irritation; in others, numberless granulations in different organs without local action. (Here, M. Lebert supposes that an infectant juice, in one case passes through the lymphatics, in another through the veins, arriving at last at the heart, and from thence to the pulmonary capillaries, where it forms foci of obstruction, and from here a part

passes into the aorta, and from thence into the cœliac axis, the hepatic and renal arteries).

"The impossibility of injecting the foci of obstruction, by the vessels, proves a mechanical obstruction, but it must have there also an irritating chemical agent, which must make the liquid traverse the obstructed capillaries, and the obstruction itself, as the collateral hyperæmia does not account sufficiently for this cellular hyperæmia, so notable. When the capillaries of the pulmonary cells are obstructed, the collateral fluxion takes place always through the last ramifications of the bronchial arteries, towards the termination of the bronchioles. This fact comes to the support of the opinion that we have published, that the cellular hyperplasie extends from the bronchioles to the pulmonary alveolæ, for these are the bronchioles that receive the most of the nutritive materials. It is very probable that in all these infections the general laws of irritation and of cellular hyperplaise dominate.

"We see different morbid products. Those of chronic pneumonia disseminated, granulations termed tuberculose, lymphatic glands chronically infiltrated, melanose, and carcinoma, provoke granulations of infection very nearly identical; also, that a hyperplastic action may take place, both in the cells of connective tissue and in the epithelium, and that the differences are not governed by age nor by changes, progressive or retrogressive of the tissues. These products of retrogressive cellular metamorphosis, when absorbed, engender new foci of infection, by irradiation and propagation at a distance, and it is thus the infection perpetuates and multiplies. Nothing is more vague to-day, than the definition of tubercle originating in an action essentially inflammatory, and its results, even its minutest products of secondary infection, have granulations in structure identical with those from inflammation of connective tissue, granulations often surrounded by diffused hyperplasie. The tubercle is a product eminently hyperplastic, so that no limitation can separate it from inflammation, and we do not know how to assimilate it to any accidental product, properly so called."

After the reading of the above, M. Hérard took the stand. The first part of his discourse was a resumé of his work on Pulmonary Tuberculosis. He found in the granulations the only characteristic lesion of tubercle. He isolates it from caseous pneumonia, even more than Virchow. After having repulsed the opinions of those who, as Virchow, connect caseous inflammation with scrofula, that he had found it much more rarely connected than granulations and caseous pneumonia.

M. Hérard asked the question, If this pneumonia followed or preceded the granulations? The German school generally sup-

pose that it precedes, that the granulations are caused by the metastasis and generalization of the caseous products, that the affection changes its physiognomy when the granulations appear. M. H. believes to the contrary, to the pre-existence of granulations. Often one may find them isolated, without caseous inflammation in any organ; often one may suspicion them by stethoscopic signs.

After this discourse, M. Villemin followed in a conciliatory manner—more conciliatory than profitable. Therefore, we omit this and many other little equestrian efforts at riding hobby-horses possessed of the vicious habit of "stumbling and bolting the course."

M. Mougeot (de Bar sur Aube) explained by the laws of osmosis, the production of tubercle.

M. Empis replied, that M. M. only touched upon the truth; the fact is, colloid substances cannot traverse membranous septa, unless they are acted upon by great pressure. It requires a great pressure to make them leave the vessels and constitute by their deposit the granulations of tubercular infiltrations. This is why all the affections that are apt to cause tuberculosis, such as scarlatina, measles, etc., are those in which one finds a great sanguine pressure, then it can make infiltrations on the surface of serous membranes, as in acute hydrocephalus. The principal indications are, then, to prevent the development of tubercle, and among moderants, he had found the best to be nitrate of potash. In conclusion, M. Mougeot spoke of the good effects that are derived from breathing steam in the many pulmonary maladies.

Evening Session, August 17th.—Treatment of Tuberculosis.

M. Gourdin recounted the results (not very satiafactory) that he had obtained in the treatment of tubercle, by the injection of nitrate of silver in the caverns, and by the use internally, of petroleum and phenique acid.

M. Marchal (de Calvi) spoke against offensive treatment in phthisis pulmonalis. He designated by the word offensive, iron, iodine, sulphur, and, perhaps, quinine. He had often seen these remedies, in subjects predisposed or already tuberculous, bring hæmoptysis and hasten the development of new tubercles. He declared the bad effects of iodine in phthisis, and its good effects in scrofula, and explained this last, that it caused hyperæmia in the glands, caused the development of new blood-vessels, which, in their turn, were agents of reabsorption, thereby relieving the engorged glands. Thus, M. Marchal separates, absolutely, scrofula from tubercle. According to him, no medication can replace a good hygiene, change of climate by sending patients to a well chosen climate. He believed, also, that

cancerous affections and other incurable diseases can be greatly benefited by transferring them to climates where such diseases are rare or not known.

M. Auzias (Turenne) cited several cases of phthisis, which had been greatly ameliorated by the use of garlic.

M. Marcovitz (de Bucharest) spoke against considering phthisis as a unity, or as one species. He wished that the facts might be arranged in such manner that one could distinguish the species. Whilst, for some, tuberculosis is a simple inflammatory affection, others consider it as a specific malady, pertaining to the constitution, the temperament, and idiosyncrasy, and others still, as an exit or termination for many diverse diatheses, as arthritis, scrofula, etc. He ranged himself among the latter. He recognized then, many sorts of phthisis that do not proceed from the same source, have not the same character, and do not demand the same treatment. Among these varieties, he signalized:—

1st. Phthisis homorrhagia, in which one observes a great cardiac susceptibility, such as palpitations, with fever, from slight causes.

2d. Phthisis subacute, generalized.

3d. Phthisis chronic, with moderate fever, with tendency to hemorrhage.

With the first form, sulphur water is injurious, but beneficial for the third. Respecting iodine, it does not act in the same manner topically as in the stomach; given internally, it may act injuriously in certain cases.

M. Lombard supported M. Marchal's views, and, in addition, remarked that elevated plateaux appeared unfavorable to the development of tubercle, because there is less oxygen received in respiration. These facts had been observed in Peru and in Mexico.

M. Haller, (of Prague) approved of the reflections of M. Marchal, upon offensive medication in phthisis. He viewed as such, those that fatigue the digestive canal, diminish the appetite, and, in consequence, induce anæmia.

[TO BE CONTINUED.]

ON RUPTURING THE MEMBRANES IN IMPERFECT DILATATION OF THE OS UTERI. BY DR. BASSMANN. (Petersburg Med-Ztschr. xi. 1, 1766; Schmidt's Jarbucher, No. 3, 1867).

Dr. Bassmann ruptures the membranes in cases where the labor has lasted for twenty-four hours or longer, and where the os uteri, in spite of regular pains, has dilated but to a very small extent, and has maintained for some time the same size. This proceeding is indicated when the os

uteri lies in the pelvic axis, when its lips are not swollen, when the head of the child has already passed into the deeper parts of the pelvis, when the pains are regular but not very strong, when no mechanical obstacle prevents the birth of the child, and particularly when no condition can be discovered accounting for the tardy dilatation and consequent absence of an efficient bag. Dr. Bassmann is convinced that this proceeding materially benefits the mother and does not injure the child. In cases of this kind, according to the author, soon after the membranes are ruptured, and a few drops of liquor amnii discharged, the pains become stronger, the os uteri dilates perceptibly, and in the course of one or a few hours the labor is completed.

Dr. Bassmann explains the result of this proceeding in the following way: The absence of a distended bag of membranes during a long and tedious labor may be accounted for either by a deficiency of liquor amnii, or by the communication between the upper and lower parts of the bag being interrupted, which occurs when the head at the commencement of the labor, has passed into the lower part of the pelvis, and has been so closely encircled by the uterus that no liquor amnii can flow by. In this condition the os uteri cannot be dilated by a wedge of distended membranes, nor can the smooth and flaccid membrane stimulate to any great extent the segment of the uterus, and induce vigorous contraction of the walls of this organ. This, however, is brought about after the membranes have been ruptured, for the head of the child then comes in direct contact with the lower segment of the uterus.

Dr. Bassmann adduces Michaelis as the single authority in favor of such a proceeding. But Michaelis seeks for the cause of the retarded labor in an over-filling of the membranes, which may be due either to a large quantity of liquor or to a smallness of the containing bag. It is stated that this over-filling hinders the outward passage of the bag, but the retarded labor may, however, be explained in instances of excessive amount of liquor amnii, by great distension of the uterine walls, and consequent impairment of their energy; and, in the second place, it is difficnlt to understand why, in over distension of the membranes without these being very large, the bag should not be forced as a wedge into the os uteri, and the uterine contractions should be deficient in vigor.

Dr. Bassmann thinks that another cause may possibly exist in connection with that given above. In one case of retarded labor he found, besides a deficiency of liquor amnii in front of the child's head, an adhesion between

the membranes and the inner surface of the uterus around the os. The membranes were ruptured, and the labor was complete after six hours. In this case it is questionable whether the adhesion or the deficiency of the liquor amnii had not the greater share in causing the retardation of the labor. Six cases are reported by Dr. Bassmann in which the membranes were ruptured, and he is inclined to think that in all these there was some adhesion between the the membranes and the inner surface of the uterus in the neighborhood of the os.—*Rankin's Abstract.*

NOTE ON ACUPRESSURE: By G. W. CALLENDER, Assistant Surgeon to St. Bartholomew's Hospital.

[Acupressure as an hæmostatic is at present receiving so much attention in the Surgical world, and is being so enthusiastically advocated by Prof. Simpson and the Edinburgh school that we cheerfully give place to the following. One of our prominent professional friends at the East, considers this procedure among the most important of the "new things" in Surgery, and that it is about to produce a revolution in much of our practice.]

Acupressure was practised on the 13th of April last by Sir J. Simpson on a patient whose breast had been removed by M. Richet at the Hôtel Dieu. Eight needles were employed, and there was no hæmorrhage after their removal, but the edges of the wound became erysipelatous, rigors followed, and the patient died on April 18th.

On the 17th of April, I amputated a scirrhous breast. The patient, aged sixty-six years, was not a favorable subject for an operation, bnt the pain in the tumor rendered removal of the growth desirable. Bleeding was stopped by means of four needles, which were removed thirty-six hours after the operation. But the wound presented an erysipelatous blush, with some dusky discoloration, and, beginning rapidly to distend with products of decomposition, had to be speedily opened. Its entire surface was in a state of gangrene, and the woman, sinking with symptoms of blood-poisoning, died on the 23d of April. In this case, the wound, which was of some size, had been closed, contrary to my usual practice, in the hope that speedy union might be obtained, owing to the presumed absence, through the use of the needles, of all local irritation. Failing in this, the patient was poisoned from the rapid disorganization which ensued, and the absorption of the decomposing materials.

There cannot be any doubt, and the fact has long been admitted, as to the efficiency of a compress, such as the acupressure needle, to arrest bleeding but the practical question which remains to be dealt with is the superiority of this plan of treatment over that of the ligature in favoring early union of wounds, and it is with reference to this point that the two cases referred to are of some interest, and may be of service in the present early stage of inquiry into the subject, so far as showing that in the repair of wounds acupressure has its unfavorable results. Unless the experience of more numerous observations teaches us that the after-process of surgical operations is helped by the use of the needles, they must be regarded as but a clumsy substitute for the ordinary ligature. This is the compass of the question.

The influence of ligatures to hurt the healing of wounds has been of late years unfairly stated. It seems to me, for example, at least doubtful pathology, on the part of the more earnest advocates of acupressure, to compare the parts surrounded by ligatures to so many sloughs. No surgeon can have had the misfortune to open a stump on account of secondary hæmorrhage but must have had an opportunity of observing that no such sloughs exist, but, on the contrary, that the tissues tied off by the ligatures at once adhere to and receive nourishment from the parts adjacent; thus they live, and do not die.—*Lancet.*

FORMATION OF PUS BY INFLAMMATORY ACTION.

In a remarkable discourse, most eloquently delivered before the Berlin Medical Society, Dr. Cohnheim detailed the results of his observations on the formation of pus as a product of inflammatory action. These results are of sufficient significance to mark a new era in the history of pathological science.

The generally accepted theory of Pyogenesis, which refers the origin of pus-corpuscles to the proliferation of cells or germinal matter in connective tissue, has received its death-blow.

The morphological resemblance of pus-corpuscles to white blood-cells has long been universally acknowledged. The modern discovery of the contractile properties with which they are endowed, has tended still further to strengthen the belief in their very intimate relationship. Dr. Cohnheim has now demonstrated their *identity* by proving that *pus-corpuscles are actually white cells which have emigrated from the blood-stream.*

He commenced his studies in the cornea, the classical ground for the study of inflammation. Availing himself of the well-known properties of white blood-cells to grasp and fix finely divided substances in their contractile stroma, he has been enabled to track these bodies, coloured by aniline-blue injected

into the blood, to the seat of inflammation, artificially excited in the cornea, and to recognize them as the cellular elements infiltrating the inflamed part. He has, moreover, succeeded in a second series of observations, for which, for obvious reasons, a transparent vascularized tissue was selected, in actually observing step by step the emigration of the white corpuscles through the walls of the veins and capillaries of the inflamed mesentery into the surrounding tissues, and the pseudo-membranous fibrin effused on its surface.

The connection between these extraordinary facts and the well-known observations of Recklinghausen (Virchow's *Archiv*, 1863, vol. xxviii. pp. 157–197), on the presence of wandering contractile corpuscles in the plasmatic channels of the cornea, mesentery, and connective-tissue of other parts, will at once be evident.

Recklinghausen ventured upon no definite statement as to the origin of these bodies. He alluded to the probability of their being formed from the first connective tissue corpuscles; but found it impossible to adduce any observation calculated to give support to this supposition. He had recognized their morphological identity with pus-cells, lymph, and white blood-corpuscles. He was acquainted with the increase and accumulation of these wandering elements, as "the essential change in the slighter degree of inflammation;" but the chain of observations necessary to assign to them their true position and origin had to be completed by Dr. Cohnheim's elaborate investigations.

It is interesting to remark, for the purpose of illustrating the stages of continuity in scientific discovery that Recklinghausen had also demonstrated the possibility of contractile cells penetrating the corneal tissue from without by a very ingenious experiment. He inserted pieces of cornea and finely powdered vermilion into the lymph-sacs of living frogs, and found them on removal after a certain time infiltrated with wandering lymph-corpuscles laden with granules of vermilion.—*Brit. Med. Journn.*, June 22, 1867.

Solvents for Cholesterine, etc., etc. By T. H. Buckler, M. D., of Baltimore.—It is believed that chloroform (terchloride of formyl) and succinate of the peroxide of iron will be found superior to any other agents as solvents for cholesterine and cholesteric fat, whether in or out of the living body. Chloroform taken into the stomach for the solution of gall-stones contained in the gall-bladder, and the continued use of succinate of iron to control the fatty or cholesteric diathesis and thereby prevent the formation of other calculi,

have been invariably found by the writer trustworthy and successful after an experience of twenty years.

Turpentine and ether combined, as recommended by Durande, of Dijon, are the agents generally used as solvents of gall-stones. In regard to these remedies, we have only to say that a mass of cholesterine immersed in turpentine for three weeks had undergone no sensible loss of weight at the end of that time, and that however soluble this substance may be in ether, chloroform must always be found preferable, since it not only acts as the most rapid solvent, but at the same time produces the anæsthesia so necessary for the relief of the anguish invariabiy attendant on an acute attack of biliary colic.

In 1848 a mass of cholesterine of the size and shape of an ordinary sized hen's egg was taken from the gall-bladder of a woman who died at the Baltimore Almshouse of some other affection. It was readily separated by gentle traction with the fingers into seventy-five irregularly quadrangular bodies about the size of an ordinary garden pea when dried. These were subjected, in separate vials, to every agent deemed capable of exerting on them a solvent influence. The mass immersed in the various acids, nitromuriatic amongst others, had undergone no sensible loss of weight at the end of several weeks. Finally a mass, weighing several grains, immersed in Edinburgh chloroform, underwent solution in a few minutes, leaving only a friable refuse resembling the cinder of burned paper.

Not long afterwards we were consulted in the case of a married lady, aged thirty-eight, the mother of five children. She was stout and strong, and had always enjoyed good health up to the time of the attack, which was ushered in by paroxysms of pain in the right hypochondriac region, amounting at times to positive anguish. On examination an irregular indurated tumor was felt through the walls of the abdomen, directly over the inferior margin of the liver. For some days this case was believed to be cancer of the liver, but as the paroxysms of pain were followed by jaundice, and the facies of the patient was not that of cancer, a conjecture was formed that the indurated tumor in question might be produced by a distended gall-bladder filled to a greater or less extent with biliary calculi and protruding beyond the inferior margin of the liver. A teaspoonful of chloroform was given by the stomach every hour while the pain lasted, and a teaspoonful only after each meal for a period of five days longer, when the indurated tumor, before described, entirely subsided, affording unmistakable evidence that the gall-stones, none of which were found in the stools, had been entirely dissolved out of the gall-bladder by the use of chloroform. About three months afterwards, this lady, who had enjoyed good health in the interval,

was again seized with a paroxysm of anguish in the right hypochondriac region, owing evidently to a newly-formed gall-stone lodged in the trumpet-shaped mouth of the cystic duct. This being again dissolved by the use of chloroform, it was deemed desirable to administer some agent capable of controlling the cholesteric diathesis, and thereby prevent the further formation of biliary calculi. Seeing that the difficulty of dissolving gall-stones by any other agent than chloroform or ether grows out of the fact that cholesterine contains a very small amount of oxygen, (from one and a half to two per cent., which is less than that of almost any other known substance), it seemed reasonable to suppose that a highly oxygenized compound would be found the better for attaining the object in view. Accordingly succinic acid and peroxide of iron were selected, on account of the large amount of oxygen contained in both of them. The hydrated succinate of the peroxide of iron was prepared by the eminent chemist, Dr. David Stewart, of Baltimore. The lady, whose case we have just stated, made use of this salt as a permanent treatment to control the cholesteric diathesis, and thereby prevent the formation of gall-stones by destroying the raw material of which they are composed. She continued to take it for a period of six months, and resumed it at intervals afterwards in the following dose: RECIPE.—Hydrated succinate of the peroxide of iron, oz. iss; water, f oz. viss—M. S.—A teaspoonful after each meal. She has had no recurrence of the attacks since she commenced the use of this salt, and enjoys excellent health at the present time. Three other cases treated with chloroform were promptly relieved.

After what has become demonstrated by H. Bence Jones and others in reference to the permeability of tissues, there is every reason to believe that a sufficient quantity of chloroform would pass into the gall-bladder through the intervening parts alone to dissolve out gall-stones, provided its use were continued a sufficient length of time; but when we reflect that chloroform is taken directly from the stomach into the current of the circulation, and that a large portion of it is carried directly to the acini of the liver, where, mingling with the newly-formed bile, it passes with it in to the gall-bladder, it is easily seen that gall-stones may be dissolved with as much certainty as if they had been placed in a bath of chloroform outside of the living body.

The use of succinate of iron may also be extended with advantage to the treatment of leuco-phlegmatic subjects in whom there is a tendency to a redundance of fatty tissue, and when there is reason to suspect that a deposit of the great disorganizer, cholesteric fat, may be forming about the heart and arteries, or in other structures. The popular idea is that a man must be very well because he is very fat, when directly the

reverse is often the case, adipose deposit being so frequently a form of structural degeneration of the tissues. It may be useful to persons having a tendency to obesity, and save them the necessity of carrying out the too rigid and often injurious Banting system of diet.

The writer is not aware that this salt has ever been prepared by any one but Dr. Stewart and his brother J. V. D. Stewart, of Baltimore, and it is perhaps important to state that it should be prepared in the hydrous state and kept constantly in the water-bath, for if dried it will never afterwards undergo a proper solution in water, but always form a gritty mixture. *American Journal of the Medical Sciences.*

MAGNETIC SOMNAMBULISM—TRANSLATED FROM THE FRENCH OF NYSTEN, BY WM. MASON TURNER, M. D., OF PHILADELPHIA.

Somnambulism is an affection of the cerebral functions characterized by a kind of an aptitude to repeat during sleep those actions which are contracted by habit, either in wandering about or in executing different movements, of which, however, on awakening, there remains no recollection whatever. Somnambulism is, perhaps, a physiological state or condition, a degree more exalted than the ordinary fantasies of slumber, rather than a nervous affection.

Magnetic Somnambulism.—This is a peculiar nervous condition, into which we can throw, by a sort of mental influence, individuals of a high nervous sensibility—particularly hysterical women. When somnambulism is provoked artificially, the most singular phenomena are observed. Some feel the hallucinations of sight, some of hearing, some of odor, etc., and are falsely made to believe in a transposition of the senses which does not exist. In somnambulism we sometimes see the pathetic faculties, intellectual and moral too, acquire a wondrous development. The memory attains an astonishing precision, and the thoughts are delivered in a correct and elegant language.

The theory of this mass of phenomena is clearly shown up by a knowledge of the physiology of the brain, but loses beyond that all that appears marvelous in it, when we have recourse to the state of scientific facts. We know that in a condition of the most perfect mental harmony, that our internal images are dependent on our external sensations; there is a complete subordination of abstract contemplation to direct observation, and to employ here a trite but very just phrase, *we see things as they are.* But it is demonstrated that even in persons gifted with a superior judgment, it is possible by purely artificial means to develop a cerebral condition in which the *within* takes the place of the *without*, and they are made to behold things otherwise than they really exist. This confirmed mental alienation is nothing but

a persistence of that condition, in which we make, in the observed phenomena, the most complicated hypothesis. For a long time it was customary to attribute certain conditions, it may be physiologic or it may be pathologic, to the influence of demons. In the witcheries of magic, as in the science [?] of magnetism, it is necessary to choose well the subject in whom you would produce cries, convulsions, dreams, and ecstacies. Only those practices are otherwise considerably more dangerous than the magnetism, for the former often end by developing *demono-mania*. We can conceive then easily, that a belief in good and evil genii was well calculated to strike with awe, feeble minds.

In the case of somnambulism, a person having been declared proper to exercise the magnetic influence, and for the rest, being inclined by his education to these corresponsive beliefs, familiarizes himself with the administration of the pretended magnetic fluid. Once his technical apprenticeship over, he commences the practice of magnetism, and after a short while, his simple appearance is sufficient to produce profound emotion. In every case, it is easy where one is of strong convictions, and where there are few with whom to deal; for generally it is a matter of no trouble to attract those who are undecided.

Now this attitude, or that gesture, or these movements, are nothing more than artifice, by means of which there is developed in a person suitably prepared, a cerebral condition more or less decisive, and which can be carried even to that ecstacy which characterizes magnetic sleep. In this condition, moreover, much less frequently to be observed than in simple lethargy, the belief or demi-belief has a power so wonderfully developed in the mind of the patient—of abstract images, of such an intensity, that all direct observation is entirely lost. *General sensibility* can even be annihilated in consequence of this profound interior absorption, and as the meditative organs commence again to exercise themselves on the products of abstract contemplation, the enrapt one can effect a series of ratiocinations sufficiently coherent; and the more, if the auditive impressions continue to operate, there can be established between the magnetizer and the magnetized a connection strongly marked; but in the case of the real ecstacy, the responses of the subject are as vague as those of Sybil, and in the midst of his devotions the magnetizer interprets them always to the great admiration of his *coterie*.

The convulsive phenomena explain themselves still more easily than do those of somnambulism. When we have studied the procedures of Mesmer, we know how it is that *natural* causes have produced these convulsions. If we wish to consider seriously the veritable cures performed by magnetizers, we will find

that they have the same value as the cures of sympathetic medicine, and that cures are performed with magnetic fluid, as Phyrrhus cured ailments of the spleen by friction made with the *toe of the right foot*, an invention which he shares with Vespasian. The curative power of magnetizers is then a simple illusion, and therein we can here confront two classments of therapeutics which have for each other the greatest affinities. While the magnetizer cures one fluid with another, we have the Homœopaths, who cure the ideal of a disease with the ideal of a remedy. Moreover, nothing should excuse a general system of treatment which enforces, in persons of feeble mind, chimerical beliefs. So the proceedings of magnetizers should be proscribed in therapeutics at once as valueless, and as nuisances. The magnetic fluid administered in *one* day, they say, would be but a very small fraction of an universal fluid, by means of which there is established (according to the theory of magnetizers) a mutual influence between the celestial, terrestrial, and animate bodies.

In going back to the beginning of abstract theories, we find a similar essence, which, under the same name, or that of *love of the world*, serves to bind again our human knowledge, and especially to quench that desire which would explain *all things*. The ease which one has, then, to deceive certain minds, relates not solely to the property which we have, to show without our internal emotions, under any sufficient influence; it rests on the profound scientific ignorance in which the mass of individuals are plunged.

In the phenomenon of the turning tables, we must believe that the table can turn without muscles, without nerves; that it can speak without the organ of voice. But all that is nothing by the side of the rapping-spirits, through the medium of which, every scientific opinion, even the very arches of mathematic phenomena, are shaken. That which contributes again in a great number of cases to the success—happily transient—of these fantastic exhibitions, is that it is not rare to encounter among these believers and propagators, persons instructed in the science. But that should only prove one thing, that judgment and common sense are independent of literary and scientific attainments. Flint, and then Schiff, have indeed shown, in their experiments on the inventors of these juggleries, that the sounds which they produced, were due to a slight displacement (previously occasioned) of the patella—to the tibia on the femur—or to the tendon of the long peroneus, all jerked suddenly into proper position. This displacement is effected by muscular contractions which are easily acquired. Aided by this physiologic knowledge, it has been an easy matter to baffle their trumpery, by causing them to place the limb in a position, in which mus-

cular contraction was impossible. As for this magnetic fluid, there exists nothing as we see, but an hypothesis denuded of all proof.

Finally, all that interest, which, according to some authors, should appertain to the physiologist, in the study of magnetism, rests in an habitual ignorance concerning the physiology of the brain—and reduces itself to this, that it is easy enough to place such or such an individual, at first, and then an assembly in whole or in part, in an intellectual condition such as the information more or less vague obtained, of the first, are interpreted by the other in the sense which is desired should be contrary to that to which attention has been directed. It is in such a cerebral condition that is to be found, the explanation of all the singular effects of magnetism, the abstractions occasioned by the juggleries which surround us—the changing effects following the practice of magnetism—all dependent on the cerebral condition of the magnetized.—*Buffalo Medical and Surgical Journal.*

Histological Reagents.—"Cohnheim and Kolliker strongly recommend the use of chloride of gold for demonstrating various points in histology. Tissues which have been soaked for some time in a weak solution of it, and afterward exposed to light, are found to exhibit certain parts, *e.g.* nerve-fibres, connective tissue, corpuscles, and cells in general, stained of a blush, violet, or reddish color, while other parts, *e.g.* intercellular substance, etc., are untouched. The fresh tissue should be covered with a little of a solution, of from one to two per cent. of chloride of gold in distilled water, and allowed to stand until it assumes a straw-yellow color. It should then be washed and placed in very dilute acetic acid (one to two per cent.). The color will, in the course of some hours, gradually develop itself. As a general rule, what silver salts stain, gold does not, and *vice versa*. Hyperosmic acid is difficult to obtain, and dangerous, though it appears to be of great use as a reagent. Vanadic acid has been proposed as a substitute."—(*Quart. Journ. of Microscopical Science.*)

HUMBOLDT MEDICAL ARCHIVES

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STRANGULATION OF THE TRANSVERSE COLON, CAUSED BY A DIAPHRAGMATIC EPIPLOCELE.—DEATH.—POST-MORTEM EXAMINA-

With this number we complete the first volume of the MEDICAL ARCHIVES.

We close Volume I. with the sixth number to enable us to begin a new volume with important changes and improvements. The contemplated changes will be of such character, as will not only materially improve the appearance of the Journal, but also correspondingly enhance its intrinsic value. We are determined that no effort or labor shall be spared to place the ARCHIVES in the very first rank of American Medical Journalism, and make it in every way worthy both a continuance and increase of the liberal encouragement already received.

dull flat sound. Singultus and occasional vomiting of ingesta and of fœcal matter,—bowels constipated. Micturition normal; so, at least, I was informed on my special inquiries concerning the bladder. Slight delirium, or unconsciousness, out of which, however, the patient could be easily aroused. As to

the history of the case, very little could be learned. The patient stated, that for a long number of years, dating back to his childhood, he was occasionally troubled with violent attacks of cholic, supervening on the use of eatables which are apt to generate gas, and he named especially cabbage and the leguminosa. Again, this last attack was produced by a meal consisting in part of cabbage. He could not remember that he had ever received a mechanical injury which might have given rise to the disease.

The diagnosis was easy in one respect, but very difficult in another. Mechanical obstruction of the intestines was undoubtedly the cause, but in what part of the intestinal tract the obstruction existed, and of what nature it was, could not be made out with certainty.

My friend, Dr. C., urged very much the operation of laparotomy; taking for granted, on account of the great hardness felt there, that the seat of obstruction must be in the flexura sigmoidea.

I confess I could not forcibly argue against his position, everything, apparently, being so much in his favor, and confined myself to the remark, "very likely the flexura sigmoidea may be the seat of obstruction, but the history of surgery shows that the physical signs in this respect are, very frequently, deceptive, and, after all, the *nature* of the lesion still remains unknown."

I, however, most positively declined to operate; and this, for the additional reason, that even if the diagnosis had been more positive, the patient was already too low to endure so serious an operation.

We agreed, then, to give such remedies as are usually prescribed in desperate cases of this kind, feeling assured that the case was hopeless. Death occurred on the second day after my visit.

Dr. C. asked permission to make a post-mortem examination and was most positively refused. Finally, I succeeded, by making sacrifices, in obtaining the permission.

On opening the abdominal cavity, the tympanitic intestines protruded, and not a trace of the greater omentum could be seen. I first looked for the tumor in left iliac region, and was not a little perplexed to find none. On the contrary, the flexura sigmoidea was completely collapsed, and overlapped by the distended small intestines.

On gliding upwards along the the descending colon, holding it between the fingers, I found this likewise empty and collapsed up to the flexura coli-lienalis, where I came across a firm, unyielding ligamentous cord. An additional transverse section of the abdominal wall, made an occular inspection possible. The whole omentum majus was twisted into one convoluted mass, forming a cord thicker than a finger, passing up and outwards through the diaphragm into the pleural cavity, about three inches to the left of the cardiac opening. The part of the diaphragm containing the hernial passage was cut out, and the entire hernia removed. This pathological specimen was presented by me, a short time afterwards, to the Medical Society of St. Louis.

The omentum, contained in the pleural cavity, of the size of a child's fist, was not covered by a sac, neither by peritoneum, nor by the pleura. It showed a congested, but not an inflamed appearance, and was agglutinated upon the pleural surface of the diaphragm, at the circumference of the hernial passage, by apparently recent adhesions, which easily yielded to traction. The hernial passage, large enough to admit a finger, did not constrict the neck of the hernia. The colon transversum, on the spot where the omentum crossed it, was completely strangulated, and gangrene of its walls, in form of a ring, had so far progressed as to render it liable to be ruptured at any moment. The colon transversum above the stricture, and also the ascending colon, were highly injected, but no actual inflammation existed. It would have been desirable to have made the post-mortem more complete, but on account of the peculiar difficulties thrown in the way, on the part of the relatives, we had to stop here.

The hernia diaphragmatica alone, from its very rare occurrence, would suffice to justify the publication of this case. But there are so many other highly interesting and instructive features in it, that I did not feel warranted in withholding it from the profession.

The hernia, as such, did not produce death. The hernia was not strangulated, but simply immovable or irreducible. The frequent previous attacks of colic were doubtless caused in the same manner by inflation of the colon, and pressure from the omentum upon its surface. But on the previous occasions, the hernia must undoubtedly have been moveable, and could then, each time, have been reduced by the increasing distension of the colon. With this spontaneous taxis, all symptoms naturally disappeared. In the last attack, however, no spontaneous taxis was possible on account of the immovability of the hernia from adhesion, and thus the strangulation of the hernia persisted.

The hard, well marked, and slightly painful tumor in the left iliac region, cannot be accounted for by the results of the post-mortem; and yet, this tumor was the only sign and symptom which might have prompted to surgical interference.

How could it have arisen? There is, in my opinion, but one way in which it can be explained, and I at once, on finding no tumor in the abdominal cavity, expressed my view to Dr. C., which on further inquiries was confirmed almost to positive verification. It must have been the hyperextended, paralyzed bladder which was dislocated in the only direction possible, i. e., upon the flexura sigmoidea, by the weight and pressure of the enormously distended intestines; for I learned afterwards, that the first statement made to me with regard to micturition, was not altogether correct. It is true urine had been passed; not, however, in full stream and at intervals, but by slowly dripping away. This indicates that the detrusor muscle was first paralyzed, and the sphincter muscle afterward became partly paralyzed, giving rise to incontinence.

I feel exceedingly sorry that I was content with the statement that "micturition is normal," and that I omitted to introduce the catheter and ascertain the true condition. If the tumor was caused by the dislocated bladder, (and I am fully convinced it was,) the catheter would have solved the question at once, and a great step would have been gained towards a correct diagnosis. At least, one great error as to the seat of obstruction being in the flexura sigmoidea would have been avoided.

This case confirms what we have already stated, that the physical signs indicative of mechanical obstruction of the bowels, cannot be relied upon in every instance, and furthermore that Lauguier's configurations of the abdominal surface, differing correspondingly with the different seats of obstruction, are in a great measure deceptive and unreliable.

Local Anæsthesia in the Treatment of Traumatic Tetanus. By J. C. Whitehill, M. D.

In the spring of 1851, shortly after my graduation, I was invited by my friend and preceptor, Dr. F. Hinkle, then of Marietta, Penn., to see with him an interesting case of Traumatic Tetanus. The patient was an intelligent lad of about fifteen or sixteen years of age, and son of a highly respectable family of that place. About two weeks prior to the development of the tetanic symptoms, he had trodden upon, and pricked the sole of his foot with, a rusty nail. The prick, although temporarily painful, healed over in a few days, and gave no farther trouble. About two weeks after the wounding of the foot, he complained of slight "stiffness" of the muscles of the neck and difficulty of deglution, and also some uneasiness at the seat of the prick in the foot, all of which, however, were attributed to "catching cold," and treated with the ordinary domestic remedies. The "cold" not yielding to such treatment, but rather increasing, their family physician, Dr. Hinkle, was called in, and immediately recognized the tetanic symptoms.

Prior to my seeing the case, it had been seen in consultation by Dr. John Atlee, of Lancaster, Penn., and others, and purgation, emesis, venesection, the hot bath, local applications to the seat of the wound, and the usual routine of constitutional treatment, had been tried without any appreciable benefit. Between the paroxysms, he was able to take liquid nourishment in moderate quantity, but the slightest excitement—a draft of cold air, or the sudden opening or shutting of a door—would immediately induce a paroxysm. The paroxysms were almost invariably preceded by a spasmodic action of the diaphragm, following which the voluntary muslar system was speedily involved, culminating generally in violent opisthotonos—the body often forming a complete arch. He kept by his side a piece of soft wood, which was placed between his teeth at the approach of a paroxysm, to prevent injury to his tongue. I would here state that with the treatment already detailed, the *inhalation* of chloroform had been thoroughly tried and found to afford relief only when *total* anæsthesia was produced, and *only* so long as this condition was sustained.

He had a severe paroxysm soon after our entering the room, and my observation of this first paroxysm impressed me with the fact that neither the intellectual faculties, nor sensation were disturbed—that the reflex or diastaltic nervous system alone seemed to be involved, and the idea immediately suggested itself, that if this part of the nervous system could be brought under the influence of the anæsthetic, without involving the brain or sympathetic nervous system, its influence might with safety, be much longer sustained than when the system at large was involved, and in this way the paroxysms be controlled or everted. To this end I suggested the application of chloroform to the entire spinal column, by means of a cloth saturated with it, and covered with oiled silk to prevent evaporation. The experiment was considered worthy of trial, and the application was made iust as the approach of another paroxysm was announced.

As before stated, the lad was intelligent, and was ready and anxious to try, and willing to endure, anything that gave a prospect of relief. We had neglected to inform him that the temporary local effect of the chloroform would be very severe, and as a consequence he was unprepared for it, and writhing under the application, begged piteously for its removal, declaring that it could not be more severe were it live coals of fire. As a result of the application, the paroxysm was everted, and in a very few minutes our patient fell into a calm, quiet and seemingly natural sleep, from which he did not arouse for several hours—the longest interval between the paroxysms he had yet enjoyed. Anxious to watch carefully the effect and influence of the chloroform thus applied, we had remained by our patient during his repose. Shortly after awaking, upon feeling symptoms of the return of a paroxysm, he asked for a re-application of the chloroform. Another eversion of the paroxysm and a calm sleep followed the renewed application. We again remained for a short time to watch the effects of the anæsthetic, and then left with instructions to renew the application if required. At our next visit we found that the sleep had been more prolonged than the former, and that the patient awoke from it much refreshed, and feeling more comfortable than at any time since the attack. For the next forty-eight hours there were occasional tetanic symptoms, which however immediately and invariably yielded to the application, of even a comparatively small amount of the chloroform. The subsequent convalescence was rapid and without unfavorable symptoms.

The treatment in this case was based upon a belief in the correctness of Marshall Hall's theory of the triple constitution of the nervous system, as confirmed by my observation of the effects of chloroform when administered by inhalation. The first effect of the anæsthetic, when thus administered, is invariably manifested upon the sensorium, and the arrest or suspension of consciousness, both intellec-

tual and sensitory, precedes its controlling influence upon the reflex or diastaltic nervous system, and this again precedes its influence upon the vital or sympathetic nervous system. Reasoning from the observed sequence of effect, the probability suggested itself that either of these systems, or parts, of the nervous system, might be separately and individually affected, if the anæsthetic could be locally applied. The theoretical inference was fully sustained by the favorable result, which certainly can only be attributed to the effect of the local application of the anæsthetic, inasmuch as general anæsthesia had already been fully tested, with but negative results so far as arresting or controlling the general course of the disease was concerned.

It may be urged that the result may be attributed to the counter-irritant effect of the chloroform; but no such favorable result is recorded from the use of other counter-irritants, even of the most violent character. There can be no question in my mind but that the curative effect can only be referable to the local anæsthetic influence upon the spinal column—the diastaltic or reflex nervous system, which is now acknowledged to be alone involved, in the primary stage at least, of this disease.

So satisfied was I with the result of the treatment of this case, that I have almost regretted that I have not had an opportunity of further testing its efficacy; but my friend, Dr. Hinkle, has since furnished me with the result of three cases—all traumatic—in which he has tried it with equally favorable results. In two of these the anæsthetic was applied to the spine, as in this case. In the other, in which the disease originated from a needle-prick in the thumb, the tetanic symptoms were but slight, amounting to trismus only, and anæsthesia of the wounded part was produced by plunging or immersing the thumb *into* chloroform. By this means, the approaching paroxysm was readily everted. Of course, in the treatment of these cases, general or constitutional indications were not disregarded.

This number of cases is of course too limited to predicate a treatment upon, from which universal and unfailing success is to be expected, but from the unprecedented success thus far resulting from *local anæsthesia* in their treatment, I cannot but think, that those who may have occasion or opportunity, to give it a fair trial in the treatment of this disease, will have no occasion to be dissatisfied with the result.

In my researches upon this subject since, I can find no record of local anæsthesia having been used in the treatment of this disease prior to my successful use of it in 1851. The nearest approximation to it, is the recommendation of Dr. Todd, to apply the gullet or gut of an ox, filled with ice, to the spine, in order to procure the sedative effect of cold; but nowhere, that I am aware of, was chloroform or any anæsthetic tried or even recommended other than by inhalation. In consideration of the importance with which the subject of local anæsthesia is being invested, by the recent experimentation of Dr. Richardson and others, and the increasing consideration which is being given to it by the profession, I feel justified in calling attention to the foregoing cases, and claiming priority in the application of it to the treatment of this, until then almost intractable form of disease.

TRICHINA SPIRALIS. By ETIENNE GOUJON. Translated from L'*Événement Medicale*, of Dec. 28th, 1867, by Dr. EMILLE CREPIN, Assistant Surgeon, City Hospital, St. Louis, Mo.

Numerous researches and the most careful investigations have resulted from the discovery of these little nematoides by Richard Owen, on the corpse of an Italian, and have greatly advanced our knowledge respecting their history, and the grounds of the fear and suspicion, which, for some time past, has prejudiced many, against an important article of public sustenance. Upon the solicitation of Mr. Ch. Robin, I have with Mr. Legros undertaken a few experiments, with

the view of ascertaining the manner in which the trichinæ are developed, and migrate from the intestinal tract into the muscles. During an interval of methodical study and observation, a variety of domestic animals were fed with infected muscular tissue, and with what results, I will presently state. Recently, also, through the kindness of M. Sapey, we have been permitted to examine many subjects on which autopsies were made at the Hospital of Paris. The results are most encouraging; though we are not authorized to state that the Parisian population are entirely exempt from this disease,—are not liable, at least, to contract trichiniasis—we can affirm that it is decidedly of infrequent occurrence, and that there is no sufficient reason, or warrantable facts, for the sudden alarm so generally felt. We shall be happy indeed if, in solving this hygienic question, we are enabled to quiet the public fears in a satisfactory manner.

On the 3d of March last, Mr. Ch. Robin presented to the Medical Academy two pieces of muscular tissue, which Mr. Onimus had received the day before, from Prof. Virchow. One of these was from the biceps brachialis of a patient who had died at the Charity of Berlin, from an affection other than trichiniasis, and where was found a large number of encysted trichinæ, which in this case exhibited a peculiar (speckled) appearance, that at once attracted attention. It is ordinarily difficult to detect the encysted trichinæ by the naked eye, as they are generally hidden from view by the calcareous salts deposited in the encysted cavities, in a greater or less amount, rendering microscopic detection even, occasionally almost impossible. It is strange that the individuals upon whom post-mortem examinations had been made for any object, and whose muscles presented this appearance, should not have attracted the attention of the most superficial observer. Such cases should hardly pass unnoticed during any ordinary autopsy.

As this deposit is likely accumulative, and as the amount in the above case was considerable, it is more than probable, that

the disease had existed for a considerable time, as the animals infected with trichinæ for eighteen months presented a much less relative quantity in the specimens examined. The second specimen which Mr. Ch. Robin placed at our disposal was from pork; the trichinæ were free,—were not visible to the naked eye, and could only be distinguished by the use of a lens; casual observation would not have led to their detection.

In Germany, the belief is generally prevalent, that the free, non-encysted trichinæ are innoxious,—are not hurtful to animals fed with meat that contains them in that condition. Upon the two varieties, and to decide the accuracy of this, the following experiments were conducted. Two collections of animals, in each a rabbit, two guinea pigs, two rats, one dog, one carnivorous bird, and two frogs were fed, the one upon the encysted, and the other upon the non-encysted trichinæ. The most of these animals were killed on the 9th of April, *i. e.* thirty-six days after ingestion, and whilst encysted trichinæ were found in both classes, and in variable amounts, in some there could not be found a trace. Among these were the dog, the bird and the frogs. The most infected were the rabbits, the guinea pigs, and the rats, and especially those which were fed on the encysted trichinæ. In these, they were so closely crowded that a pin head could hardly be placed on their muscles without touching several trichinæ. We were enabled to find these entozoa only in the voluntary striated muscular tissue. The heart and viscera were exempt, where as yet they have not been observed.

As before stated, the animals fed on the non-encysted trichinæ, exhibited these entozoa to a very limited degree; two or three cysts only were found in each, after patient investigation, and several preparations had been made with the utmost care. This establishes the fact that trichinæ in the free state are not capable of infecting animals to the same extent as when encysted.

[TO BE CONTINUED.]

THE TISSUES.

SIXTH LECTURE ON PATHOLOGICAL ANATOMY. Delivered on the 20th of September, 1867, to the Medical Profession of St. Louis, by A. HAMMER, M. D., Prof. of Surgery, Ophthalmology and Pathological Anatomy in the Humboldt Medical College of St. Louis.

GENTLEMEN—

We pass to-day to the consideration of another tissue of considerable interest, the muscular tissue. This consists of fibrillated elements, possessing the peculiar power of contracting upon the application of certain agents called irritants. This property is termed irritability. The normal stimulant of muscular contraction, is nervous action. Until the last twenty-five years, the scientific mind has been agitated for more than a century, with the question as to whether the muscular fibres possessed the irritability of themselves, or whether it was owing entirely to the influence of the nerves acting upon the fibres. We owe the solution of this problem to Haller, who first pertinaciously advocated the independent irritability of muscular fibre. This principle is now admitted by all prominent physiologists. The knowledge of the fact was arrived at by the use of Woorara, a vegetable poison, which possesses the peculiar power of paralyzing the nerves. This being done by the use of this agent, and the muscular fibres being still found to respond to irritation, proved conclusively that the irritability is a property inherent to the muscular fibre.

This tissue appears under two distinct forms. 1st, as spindle-shaped, elongated cells, varying from 1-100 to 1-2 of a line in length, the largest size of this form being beautifully shown in the impregnated uterus, where they become macroscopic. 2d. It appears also as cylindric tubes or fibres, presenting a beautiful transverse striated appearance. The first form, composed of elongated spindle-shaped cells, is called the smooth or involuntary, and the second, the striated or voluntary muscular fibre. This classification, as

we shall hereafter show, does not hold good in every instance.

In the beginning of the development of either of these forms, there is no difference, both being elaborated from embryonic cells. One, however, retains its cellular form, while the other becomes so much transformed that its cellular nature is not easily recognizable, and can only be demonstrated by careful examination. For our knowledge of the smooth muscular fibre, we are chiefly indebted to Kölliker, who first pointed out its nature. The spindle-shaped fibre possesses an elongated nucleus, the nucleolus being apparently absent. Generally only one nucleus is found, though in the largest fibres, two, three, or four may be observed. These elongated cells lie close to each other, presenting sometimes the appearance of a membrane, and can only with difficulty be isolated. They are composed of cell-wall, cell-contents, (protoplasma) and nucleus, the nucleolus being absent. The cell-wall is very resisting to chemical agents. The cell-contents differ from those of cells generally, in that there is but little difference between wall and contents, the latter being a homogeneous mass, somewhat solid in consistency. The nuclei are also cylindric in form, and their contents bear the same relation to their walls, as the cells and protoplasma do to each other.

In color these cells are pale, with a somewhat yellowish tint, differing, in this respect, from the striated variety, which have a distinct reddish color.

We have already remarked that the classification of these forms into voluntary and involuntary fibres does not hold good in every instance. We have, however, in the human body, but one example incompatible with it, that of the heart. This is undoubtedly an involuntary organ, and yet its muscular substance is composed of the tranverse striated fibres. It should, therefore, under this classification, be classed with the voluntary muscles. In different classes of the lower order of animals, we find the corresponding organs, performing the same functions in each, in the one case

being composed of the smooth, and in the other, of the striated muscular fibre. This inconsistency proves the falsity of this classification. The only proper classification seems to be this, that the character of the muscular action depends entirely upon the character of the nerve which enervates it, the voluntary nerves producing voluntary action, and the involuntary, involuntary action.

The smooth muscular fibre in man, exists in all those organs not subject to the will. It is found in the whole intestinal tract, in the respiratory system with the exception of the larynx, in the genital organs of both sexes; in the skin, where we have before mentioned the arrectores pili, in the bladder and in the uterus. In this last organ, as we have before stated, these fibres assume, during gestation, a macroscopic size, which continues up to the period of labor, when they again decrease, some being absorbed after having undergone fatty degeneration, others decreasing in size (becoming atrophic) until the uterus again assumes its normal condition.

The second form, that of the striated muscular fibre, is more interesting in one respect, because we do not see at once its cellular nature. If we examine a large muscle, the biceps, for instance, the following appearance is observed. In the first place, the muscle is surrounded by a well-marked fibrous membrane, called the perimesium. On a transverse section it is found to be composed of numerous bundles of fibres, each bundle being separated from the others by a similar membrane, a prolongation from the general perimesium. Furthermore, each of these bundles is seen to consist of a multitude of smaller bundles, each wrapped in a similar membrane. Thus we observe the different classes of perimesium. If we examine these primitive muscular bundles, we find that they are composed of fine fibrillæ, each appearing as a cylinder covered by a homogeneous, resisting membrane of elastic tissue. On the inner side of this membrane are observed a number of

nuclei adhering to its wall. The substance enclosed in this membrane will be hereafter described. The membrane might be called the ultimate perimesium, but it has received the name of sarcolemma, on account of its contents.

If we examine an ultimate fibrilla, we find that its surface is marked by a multitude of transverse lines, giving it a striated appearance. When torn asunder, we observe certain projecting prolongations at its torn end. But under certain circumstances we do not observe this transverse striated appearance, but something totally different, a longitudinal fibrillation. This was for a long time the stumbling block of Histologists and Physiologists. How could these differences in the same tissue be explained? It was at first attempted only to explain the transverse striae. Schwaun formed the hypothesis that the muscular substance contained in the sarcolemma was made up of longitudinal fibres, and that these became varicose at certain intervals, and that many fibres lying side by side, with their varicosities corresponding, gave the fibrillae a striated appearance. This theory might have stood, had it not been discovered that by certain chemical agents a division of the longitudinal fibres could be caused, and this being done, no varicosities were found. But by certain other agents the muscular substance can be divided into as many separate discs as there are transverse striae. This fact was clearly incompatible with Schwaun's theory. The only satisfactory explanation of these phenomena we owe to two celebrated English Physiologists, Todd and Bowman, who formed the following hypothesis—that the substance within the sarcolemma is not properly fibrillated, but only consists of granules, connected with each other by means of a connective substance or cement. These granules are arranged in such a manner as to represent the longitudinal lines, being in parallel rows. These sarcous elements are also connected with each other in a transverse direction, and here lies the explanation of the whole mystery, for, said these phys-

iologists, these cements are two different substances, differing in character and chemical composition. It depends, therefore upon the chemical agents used, whether the longitudinal or the transverse cement is dissolved, causing a splitting either into longitudinal fibres or into discs. If we wish to dissolve the ultimate fibrillae into longitudinal fibres, we have only to mascerate the fibrilla in water for a considerable time, or the same result may be more quickly produced by boiling. The application of alcohol or chromic acid for a certain time, or of corrosive sublimate or chloride of potassium will produce the same results. Acetic acid, or muriatic acid in extreme dilution dissolve the cement, uniting the elements longitudinally, and cause the appearance of the discs.

Though the striated muscular fibre appears to differ so widely from the smooth fibre, we repeat, that they are in reality identical. In the first place, if the entire length of a striated fibre be examined, it is found to be not entirely cylindrical, but tapering at each end. Remack and Lebert have proven the following facts, observing the development of muscular tissue in frogs: first, that the development of the striated muscular fibre begins in a cell, with nucleus and nucleolus. This cell presents a finely granular appearance. It then changes its form, becoming tapering at one end, then the other extremity becomes elongated, the cell still presenting the same dotted appearance. Then a proliferation of the nucleus takes place, it becoming divided into two, three, or four nuclei, the contents still remaining dotted. Then, on following up the complete development, they observed that the sarcous elements were merely the differentiated cell contents, forming three distinct elements, the granules and the two cements, while the proliferated nuclei persist on the wall of the sarcolemma, which is merely the elongated cell wall.

This was a grand triumph of science. Kölleker proved that the smooth muscular fibres were composed of cellular

elements, they demonstrated that the striated muscular fibres were the same.

Chemistry reveals but little difference between the two forms. This science has always remained behind the advance of Histology. If we should study the chemical analysis of muscular fibre, made 30 years ago, we would obtain but little information as to its true composition. We now know that both varieties contain from 72 to 76 per cent. of water, the rest being solid matter. Of this solid matter about 20 per cent. is made up of protein substances, that is, of albumen, and from 15 to 17 per cent. are derivatives of this substance very similar to it, though transformed to some extent, and called by Liebig muscular albumen or syntonin. Besides this, we find some little fat, partly derived from the nerves, and partly belonging to the muscle itself, for in each muscular fibre we find certain spots or dots, which can only be explained by the supposition that they are fat globules. According to Liebig, we further find a number of substances, called by him the organic bases, which are the products of decomposition by muscular action. These are called kreatin, kreatinin and sarcin, and in lower animals still others, called xanthin, leucin, tyrosin, &c. In man we also find yet another, Inosit, a spurious sugar.

With these organic bases we find a number of acids combined, principally lactic acid. According to Dubois, muscular tissue does not show this acid when at rest, but only after muscular action, showing that it is a product of decomposition. Besides this we find butyric, acetic, formic and uric acids, and also a number of salts or mineral substances. A very strange fact has been observed in this connection, that these salts are present in the muscle in an inverse ratio to their presence in the blood. In the blood we find soda abundant, and potassa in much less proportion, while in the muscle we find the mineral substances principally composed of potassa, in connection with phosphoric acid, and but little chloride of sodium. This shows

that such elements are elaborated from the fluid, in correspondence with the function to be performed.

One other remark before we leave this subject, in regard to the contraction of muscular tissue when acted upon by nerves. We find that in contraction, both the voluntary and involuntary muscular fibre become shorter and thicker, the membrane in both still remaining in close contact with the sarcous elements, the sarcolemma in both being elastic.

In regard to the difference in the contractions of muscles when acted upon by voluntary and involuntary nerves, we observe that when a voluntary nerve inervates a muscle, it contracts at once and synchronously with the nervous action, and immediately ceases its contraction upon the withdrawal of the stimulus. On the contrary, in the involuntary actions the innervation and muscular action do not occur simultaneously, but the contraction comes on gradually, taking some time to occur, and then declining in the same manner. This fact will be again mentioned when we come to the consideration of the nervous tissue.

We will next consider another very important tissue, the so-called

VASCULAR TISSUE.—This consists of quite a large number of tubes, of different sizes, continuous with each other, and having a common centre, the heart. From this center certain vessels, called efferent, originate there, and certain others, called afferent terminate. These two systems of vessels have a connecting link in the periphery or in the organs which they supply. The efferent vessels are called arteries, the afferent, veins, The intervening system of small tubes, which is the connecting link between the arteries and the veins, is called the capillary system, and is the most important part of the circulatory apparatus, for purposes of nutrition. Besides these there is also another set of vessels, somewhat similar to the veins, called lymphatics, which lead to a common trunk, the thoracic duct, which enters the vènous system in the vicinity of the heart and

mixes its contents with the blood. The structures composing these vessels are not everywhere uniform, for we find in both, arteries and veins, several different tissues going to make up their structure. It is therefore improper to denominate this structure as vascular tissue. It is only in the capillaries that we find the proper vascular tissue, these consisting of a simple homogeneous membrane. However, we are compelled by common usage to treat of all the tissues composing blood-vessels, as vascular tissue.

The arteries and veins are each of different sizes, large and small, and the walls of each are composed of four layers, three of which are called coats, external, middle and internal, and a lining membrane which consists, in each instance, of a single layer of epithelial cells, though these cells differ somewhat in the two classes of vessels. In order, however, to obtain a more correct idea of these layers, let us first consider the structure of the capillaries.

These are composed of a homogeneous, colorless, cylindrically formed membrane, of an elastic character, having no apertures or pores, and presenting on its inner surface, here and there, a nucleus. In the capillaries of larger size, these nuclei are arranged in alternate positions, being oblong in their perpendicular diameters. The size of the capillaries varies very much, ranging from 2–1000 to 6–1000 of a line in diameter. This difference in size is dependent both upon their locality and their office. They are generally very short, being interposed as connecting links between the arteries and the veins. They are formed by the gradual tapering of the arteries, caused by their dividing into numerous branches, which continue until they reach the capillary size, consisting of but a single membrane. Then, in pursuing their course, they become gradually changed into veins, their walls again increasing in thickness. The capillaries proper are extremely short, and the reasons for the necessity of this will be given hereafter.

If we examine a vessel whose diameter is a little greater

than 6–1000 of a line, we observe the following appearance. The nuclei are still formed on its inner wall, but on the outside of this homogeneous tube, we find a second layer of the same structure. This layer also shows the same longitudinal nuclei. This, then, is only a capillary with a secondary wall, representing merely an increase in thickness of this wall. Yet a vessel of this kind cannot be called a capillary, but is in reality an intervening link between the capillaries and the veins or arteries. This secondary layer, on following up the vessels, is found to become thicker, until it finally constitutes the tunica adventitia, the most external covering of the vessel. This fact becomes more apparent on following up the vessel a little further, when we discover appearing between the first and second layers a third one. In this layer the nuclei are also present, but they are so arranged that their long diameter is parallel to the transverse cut of the vessel. Consequently in the smallest arteries, those 2–100 of a line in diameter, we have the following arrangement of layers, first, the internal homogeneous membrane; second, the external membrane, both of these containing the longitudinal nuclei, and third, between these, the layer just described, presenting the transverse nuclei. We lay great stress upon the proper understanding of these layers, as this is absolutely essential to the satisfactory explanation of certain pathological processes, to which we shall refer. When we examine the homogeneous capillary membrane, we are involuntarily reminded of the striated muscular fibre, with which it is identical in structure, the only difference between them being this; that while the one is empty, the other is filled with sarcous elements. Recollect, then, the longitudinal nuclei implanted on the inner surface of the internal membrane. The most frequent pathological processes occurring in blood-vessels are those of fatty and atheromatous degeneration, calcification, petrifaction or ossification, aneurism and abcess. It would be impossible to explain most of these processes, without first being familiar with these nuclei.

We now come to the consideration of the larger vessels. If a transverse section of a boiled and dried artery or vein is made, we observe on its inner surface, the inner coat previously described. This is nothing but the thickened original membrane constituting the entire wall of the capillary. It is of an elastic character, and though it now appears to be uniform, still on close examination nuclei are found to exist within its substance. It is lined by a single layer of pavement epithelium, the cells of which are not round, but of a somewhat oblong shape. The second layer is largely developed, greatly preponderating in thickness over the other layers. In the larger arteries it is thinner than in those of medium size. It is elastic in character, like the inner coat, but with this difference, that while in the latter the fibres are arranged in a longitudinal direction, in the former they are transverse, surrounding the vessel, and often uniting with each other. In those arteries which possess a very thick wall we observe from 15 to 40 layers of these circular elastic fibres. Between each lamina we also find smooth muscular fibres, entirely filling up the spaces between them. These muscular fibres consist of elongated cells, as we have before described. In the third coat we find a connective fibrous tissue, and in the veins and in some of the arteries, interwoven with smooth muscular fibres. We find also an elastic network, which is only a differentiation of the fibrous tissue.

It is therefore important to recollect the four layers of which the so-called vascular tissue is composed, and that they are all merely cellular elements, no matter how much differentiation may have taken place. In the veins there is but little difference in arrangement from the arteries. The middle coat is not so well developed, frequently having no muscular fibres, possessing only the transverse elastic fibres. But in this case, as a compensation we find the external coat thicker, containing muscular tissue in a larger proportion than the same coat has in the arteries.

We have still a few words to say in regard to the capillaries. These, as we have before remarked, vary much in size, the smallest being found in the brain and retina. In one part of an organ of the body, in the choroid membrane of the eye, the capillary system seems to be entirely absent, the arteries and veins communicating directly with each other, I mean the system of the vasa vorticosa. The capillaries differ very much in regard to their arrangement, never entering into cellular elements, but simply surrounding them and therefore the capillary network receives the form of the organ which it supplies. The fat cells are always surrounded by loops. If the form of the organ is longitudinal, as in the case of muscle, then the capillaries are arranged in a longitudinal direction, more or less parallel with each other. If the organ supplied, as in the case of the glands, is round in form, then the network of capillaries assumes a similar shape. In the papillae of the skin they are arranged in a conical form, corresponding to the shape of those organs. A very curious arrangement of the capillaries occurs in the kidneys, in the Malphighian corpuscles, and there serve to perform a physiological function of very great importance to the system. We have before remarked that the capillaries are very short, and that the current of blood in them is slow, in consequence of their greater capacity compared with the arteries and veins. Therefore, if these capillaries were of greater length, it would take comparatively a very long time for the blood to pass through them. We know that the time in which the blood completes the circle of the body is about one-half a minute. For this reason it is impossible for the capillaries to be very long. We know by observation of the circulation in a frog's foot, that the blood corpuscles move through the capillaries at the rate of 1–4 or 1–5 of a line in a second. In the kidneys, the capillaries are very much elongated, being twisted into a globular form in the Malphighian bodies. This is wisely arranged by

nature in order to accomplish the copious excretion of serum, which the kidneys eleminate. The length of the capillaries and the slowness of the circulation in them produce this result.

We may now say a few words in regard to the circulation in general, particularly in regard to the manner in which the blood is carried through the system. You will remember the three coats of the vessels, the external one fibrous, the middle muscular and elastic, and the internal one entirely elastic. The blood exercising a certain pressure upon the walls of the vessels, and the middle and inner coats giving away to a certain extent, they possess, by their elasticity the property of again returning to their natural size. They are therefore continually dilating and contracting, and this movement is called pulsation. It produces a wavelike motion in the arteries, commencing at the heart and extending toward the periphery. It was formerly supposed that this property of the walls of the vessels was the active agent in the propulsion of the blood, and that the contraction of the vessels was the paramount cause of the circulation and of the pulse. This theory is now known to be false. The motion thus produced is merely passive. This undulation extends only to the arterial system, to a distance in the smallest arteries, depending upon the extent of division to which the artery has been subjected. The more branches given off, the greater the obstacles to the impulse, until finally it entirely ceases. What is the cause of this propulsion? Not the pressure of the walls of the vessels, but the force of the heart's action. This motion is also assisted by the difference of pressure in the two systems, that in the arteries being said to be ten times greater than that in the veins. During the systole of the heart, the blood is driven into the arteries, and during the diastole it is received from the veins into the heart, the pressure in the veins being thus relieved, and this is made an important agent in the move-

ment of the blood through the vascular system. In proportion to the number of branches given off by an artery, does the velocity of the blood become slower and slower, until at last, when it reaches the capillaries, it attains its slowest movement. As it passes into the veins, the rapidity of the current is again increased, the capacity of these vessels being much smaller than that of the capillaries. Therefore, in the capillaries, which have the greatest capacity, the motion is slowest. It is, as we have before mentioned, more rapid in the veins. The greatest velocity of the blood is found in the larger arteries near the center of the vascular system.

The nutrition of the system is egotistic and subservient. The exosmosis through the capillary walls is, of course, not the same in all localities. The materials interchanged are not the same in the lungs as those in the kidneys, skin, &c. On what does this difference depend? On various causes. The walls of the capillaries, though appearing uniform in all localities under the microscope, must certainly possess some differences in molecular arrangement. Again, the fluids which pervade the intercellular substance, are different in different organs. Consequently this may also influence the exosmosis. The blood is also not the same in all portions of the body, but shows different proportions and elements in different parts. Again, the particular arrangement of the capillaries, as to whether they are thick or spare, short, or long and convoluted, may also influence the process. All these circumstances help to explain the fact that out of the blood, through walls seemingly identical in structure, such a number of different secretions take place in different parts.

There are two different modes by which vascular tissue is formed. The heart and the larger veins and arteries, are, in the embryo, composed of solid pillars or cylinders, consisting of embryonic cells. In the course of development the centers of these cylinders liquify, the periphery still retaining its solid form, and representing the walls of the vessels. The central

parts then consist of cells floating in a fluid intercellular substance, and constitute the blood. You will comprehend why we have not previously treated of the blood, but have delayed its consideration up to this time. The reason is, that the classification of tissues should be based, not upon their structure or appearance only, but upon their origin. The second mode of formation of the vascular tissue, is that which occurs in the smaller arteries and veins. Here we observe an entirely different process. We have in the beginning the oblong formative cells, which, during development, deviate so as to become elongated and spindle-shaped, arranging themselves in rows touching each other at the ends. The membranes at the points of contact then become absorbed, so that a continuous cavity through the cells is formed. The nuclei of the cells remain attached here and there to the main walls of the vessels. Thus is formed, as you see, the capillary structure. But if the vessel is destined to become an artery or a vein, it must acquire two or three other coats. These are formed by the deposition of other cells upon the walls of the vessel, these then coalescing and forming the other coats. These are the two modes by which the vascular tissue is formed, and may be readily comprehended. But the question arises, how are the branches produced? How does an artery divide? In the capillary structure this process has been demonstrated by actual observation. A capillary pouches at a certain point, this process then becomes longer, until at a certain distance it meets with one of those important cells before mentioned, a spindle-shaped cell, or connective tissue corpuscle. This may have several processes. One of them unites with the projection from the capillary, the cavities of the cell and capillary becoming continuous, the nucleus of the cell is driven to the wall, the other processes of the cell become elongated, and thus the two branches of the capillary are formed. These branches may again meet with other cells, or another capillary vessel, and thus the capillary net-works are formed. You here again see the importance of the connective tissue

corpuscle, the *Deus ex Machina* of the organism. If the destiny of these capillaries is to become larger vessels, then occurs the process of deposition before spoken of.

In pathological processes this capillary formation is frequently observed, particularly in organs not possessing capillaries in their normal state, as in the cornea. This, as we know, is only vascular in the foetus. In the born person the vessels are obliterated, except to the extent of one-half a line from the periphery. In the disease known as pannus vasculosus, blood-vessels are rapidly formed in the cornea. This fact led formerly to the assumption that the cornea actually possessed vessels, but so minute as to admit only the serum of the blood. Hence they were called the "vasa serosa." These were supposed to be so much enlarged by pressure from behind, in inflammation of this organ, as to admit the red blood corpuscles, and thus become visible. This theory is now exploded. We know that no vasa serosa exist, but that what were mistaken for these are only empty spaces between the cells. The doctrine denying the existence of the vasa serosa met at first with great opposition, on account of the great rapidity with which these vessels are formed, but this is now agreed to and understood by all late pathologists.

We will now say a few words in regard to the lymphatic system. This is auxiliary to the general circulatory apparatus, and has been classed with the veins, since it conveys materials from the periphery to the center. The contents of these tubes is called lymph. Some of them, having their roots in the intestines, contain a fluid called chyle. These substances are nutritive material introduced into the system through the tubes, in order to compensate for the waste of the tissues in the performance of the life actions. Both classes of lymphatics have the same structure and function and may be considered together. They both find their way to the heart through the thoracic duct, which passes up by the side of the spinal column, and

empties into the left subclavian vein. The lymphatics are similar in structure to the veins, consisting of three coats and a lining epithelium, the middle one being weaker than that of the veins, the outer and inner ones being fully developed. They have valves like the veins, but do not lead like them, directly from their origin to their destination, but are interrupted at various points by lymphatic and mesenteric glands. They end in these on one side, and originate from them on the other. It is held, however, by some histologists, that the vessels do not end in these glands, but that the efferent and afferent vessels are directly continuous. The question is therefore still open to dispute. Certain physiological facts tempt us to believe the first view to be correct, for in these glands certain corpuscles are found, lymphatic or white blood corpuscles. If these vessels merely pass through the glands, the origin of these corpuscles cannot be readily explained. But if we assume that they end in the glands, then we may readily comprehend the process. The question is, however, still open.

How do these vessels commence? It is very difficult to study them in their course, on account of the extreme difficulty of injecting them. Recently, however, Recklinghausen and others have demonstrated that they open by free extremities in the tissues, commencing in the interspaces of the fibrous areolar tissue in the various organs. There is, therefore, no difficulty in seeing how they collect their fluid contents from the tissues. This anatomical question, however, is not yet settled, as there exists much discrepancy among the most prominent men in the profession with regard to the true origin of the lymphatics.

This being all that it is necessary to state in regard to the walls of the vessels, we will now pass to the consideration of the vascular contents. John Hunter said, more than 100 years ago, that the blood was a liquid tissue. This statement we now know to be true, as proven by

its origin, which we have just referred to. It consists of formed elements and intercellular substance, and the abundance of the fluid intercellular substance, has given rise to the question, as to whether it is a tissue or not. It is an apparently uniform fluid, but varying in different localities. You must bear in mind, that it is contained in channels from which certain materials are continually passing out, and into which others are continually being received. Yet, as a whole, it may be considered as a uniform structure. It is of an alkaline reaction, its temperature about 100° Fahrenheit, and specific gravity about 1055. It is composed of two parts, the formed elements and the serum. These parts differ in their specific gravity, that of the formed elements being 1088, and that of the serum 1028. It is red in color, but not of a uniform tint, the blood in the arteries being brighter than that in the veins. That in the arteries is called arterial, and that in the veins, venous blood. These distinctions are not absolute, for the pulmonary artery conveys venous blood, and the pulmonary veins arterial blood. It has a peculiar odor which cannot be described. The amount of blood in a single individual has been very differently estimated by different observers. It was thought for a long time, that the amount of blood in an ordinary, healthy adult, was as much as from 20 to 30 lbs. By comparing the different estimates which have been made, we may conclude that the blood comprises from 1-8 to 1-13 part of the weight of the body.

The serum of the blood is a waterlike, colorless fluid, presenting a yellowish appearance when separated by coagulation. The formed elements consist of white and red blood-corpuscles. The red corpuscles are from 2–1000 to 3–1000 of a line in diameter, and bear the proportion in number to the white corpuscles, of 1,000 to one or two. This proportion was, until lately, thought to be much less, as low as 100 to one or two. In a healthy individual the proportion may be safely stated as about 1,000 to two. This proportion, how-

ever, varies in different organs, being in the splenic vein as high as 1,000 to sixty, and in the hepatic vein about 1,000 to twenty. This verifies what has been previously said in regard to the variability of the blood. These differences are within physiological bounds. Young persons have a greater proportion of white corpuscles than adults. In some pathological conditions this proportion becomes much more marked. In a disease recently discovered by Virchow, but wrongly claimed by Bennett, called Leucaemia or Leucocythaemia, the white corpuscles may actually equal or surpass the red in number, thus giving to the blood a peculiar appearance.

If we examine a red blood corpuscle under the microscope, we perceive that it is not vesicular, but discoid, having a well marked, cup-shaped depression on each surface. In the adult it possesses no nucleus, but has this during the first period of embyronic life. It has a yellow red appearance. The reddish tint is found to be produced by the cohesion of two or more of the corpuscles, when taken separately, they being found to be simply yellowish. When a corpuscle is exposed to evaporation, the membrane surrounding it, which is of a smooth elastic nature, shrinks up, loses its smoothness and becomes jagged and even stellate. Just the opposite effects are produced by the addition of water to a corpuscle, its discoid form becomes lost, and it assumes a vesicular shape. It then appears a little smaller than before. If exposed for a longer time to the action of water, it turns gradually paler, and finally the membrane bursts and the vesicle is destroyed. Other substances, as concentrated solutions of sugar, chloride of sodium, mucilage, &c., produce the same effect as evaporation. If these solutions are very dilute, they act in the opposite direction and produce the vesicular form. If we use alkalies and other mineral substances in solution, the wall is dissolved and the corpuscle destroyed. Alcohol, creosote and chromic acid, produce a coagulation of the contents. Oxygen acts upon the corpuscle in the same manner as a concentrated

solution. Carbonic acid acts in the same manner as water, producing the vesicular form.

The red blood-corpuscle is not the same in every locality. In the hepatic veins, particularly, though also in the splenic, the corpuscles possesses no central depression, as when found in other parts, but are vesicular. Its contents are a somewhat tough, inspissated, jelly-like mass, and consist of globulin, haematin, water, and a number of mineral salts. The globulin is a derivative of albumen; the haematin is the coloring matter. These two elements are so intimately combined with each other, that it is impossible to separate them, hence we see them enumerated together as haemato-globulin. We shall give hereafter a more complete analysis of the blood.

The white blood-corpuscles are roundish and vesicular, containing no depression, but being sometimes a little flattened. They are more or less granular in appearance, with fine indentations on the surface. They are much larger than the red corpuscles, being about 4–1000 of a line in diameter. They differ much in size, this depending, perhaps, on age. They have two or more nuclei, sometimes as many as twelve. These nuclei are not always visible, on account of the granular appearance of the contents, but on the addition of water or acetic acid, these are readily brought into view. They may be easily confounded with lymph, chyle, mucous or pus corpuscles, as they are identical with these in structure. This fact was first announced by Virchow, and caused a great commotion in the scientific world. It was considered as being discouraging to the researches of the microscope. Virchow, however, correctly stated that it is not the structure of any element that makes it distinct from others, but its origin. We cannot always determine on sight, whether we have a white blood-corpuscle or a pus-corpuscle, but this is readily ascertained by learning its origin. The white blood-corpuscle possesses a peculiar power of contractility, which

is also possessed by the pus-corpuscle. By this property it is able to change its form to suit its locality, and again resume it on the relief of pressure. They originate in the lymphatic glands and in the spleen. The idea formerly held, that the corpuscles were generated out of the lymph and chyle, is now exploded. No cell is generated except from a previous cell. Direct observation has demonstrated that lymphatic vessels do not, at their commencement contain these corpuscles, but that they are found only after the vessel has passed through a gland. They may therefore be considered to be the product of these glands. The pulpy substance of the spleen has a similar office. The evidence in favor of this fact is so strong that it is impossible to disbelieve it.

What is the destiny of the white blood-corpuscles? This is undoubtedly connected with the decay of the red corpuscle, and the question is identical with that of the origin of the red corpuscle. We have many reasons for supposing that the white corpuscles are the primary stages of the red and are transformed into them. We find, for instance, in some organs, particularly in the venous blood of the spleen, certain corpuscles which are neither white nor red, but intermediate or hybrid. Furthermore, we meet, in the thoracic duct, with similar corpuscles. Unless we admit this transformation, it is impossible to explain the origin of the red blood-corpuscles. The idea, however, presents some perplexities. The white corpuscles are larger than the red, and possess nuclei. How, then are the larger transformed into the smaller, and the nuclei lost? Some observations and experiments tend to explain this question. Staedeler found, that tyrosin, a derivative of albumen, after having become slowly and incompletelv oxydized, furnishes a coloring substance, erythrosin, very similar to haematin. This tyrosin is abundantly found in the spleen, though scantily elsewhere. It is therefore more than probable, that the spleen is not only one of the chiet organs for the generation of the white

blood-corpuscles, but likewise furnishs the material out of which, through a successive series of chemical processes the haematin is formed, and thus it will not be difficult to understand how the white blood-corpuscle will be transformed into the red.

We will now make a few remarks in regard to the corpuscles in general. Hitherto we have spoken of these only as occurring in man. Both white and red corpuscles are also found in animals. In the mammalia we observe discs similar to those found in man. Some of the ruminantia have oval-shaped corpuscles. In birds they are three or four times as large as in man, oval-shaped and have a granular nucleus. Instead of a depression as in man, they have an oval-shaped elevation on each surface. In the amphibia they are of the same size as in birds, oval-shaped and nucleated. In the proteus the corpuscles are so large as to be macroscopic.

HOSPITAL REPORTS.

THREE CASES OF FRACTURE OF THE LEG, treated with Dr. Clark's Suspension Railway Splint. Reported by Dr. WM. H. WOOD, Assistant Physician, City Hospital, St. Louis, Mo.

Case 1st. Joseph Nichen, a German, aet. 24, admitted October 27th, 1867.

Diagnosis: Transverse fracture of tibia and fibula near the junction of middle and lower third. The patient received the injury from a very slight cause. He states that during a walk on the night of October 26th, near County Farm, he fell into a ditch about two feet deep, and "broke his leg." The next day he was brought to the hospital with the fracture above-mentioned. The ordinary posterior splint was applied and continued until November 10th, when it was replaced by the improved splint of Dr. E. A. CLARK, Resident

Physician to the hospital, a description of which will be found in the fifth (January) number of the MEDICAL ARCHIVES.

December 14th, 1867. Patient has not suffered much in general health. Clark's splint was removed to day. Leg slightly attenuated; ankle somewhat œdematous. No deformity. Patient walks with the aid of crutches. In speaking of the two splints used in his case, he says that during the continuance of the posterior splint, he was in almost constant pain; when the other was applied he was relieved, and during the remaining weeks of his confinement, enjoyed considerable comfort.

Case 2d. Antonine Butner, a native of Germany, aet. 28. Admitted November 8th, 1867.

Diagnosis: Fracture of right tibia near junction of middle and lower third. The accident occurred in the following manner. While at work piling lumber, a large number of boards fell from the pile on his leg. He was brought to the hospital on the same day, and treated with Barton's fracture box, from the date of admission until December 1st, when the limb was suspended by means of Clark's Suspension Railway Splint. The free motion which the splint allows, afforded the patient great relief and moderate comfort.

December 14th, 1867. Slight œdema in the leg, and at times pain. Good appetite, pulse natural, bowels regular.

On December 21st, Clark's splint was removed. For several days following, the paste-board splint was used. Patient then called for his crutches and left his bed. Fractured ends had united firmly. Patient required no further treatment.

Case 3d. William Rowland, aet. 19. Nativity, U. S. Admitted December 5th, 1867.

While engaged in excavating a bank, a portion of earth fell upon him, causing a fracture of the right tibia, near the junction of the middle with the lower third. The patient is in excellent general health—by far the finest looking man in his ward. Has always been very healthy.

December 5th, 1867. There is considerable œdema of the

leg with redness, heat, and severe pain. The fractured limb rests on a pillow. There is used merely cold water dressings.

December 14th. Above treatment discontinued. Swelling reduced sufficiently to admit of application of bandage. Patient's health continues good. Has passed several sleepless nights. Clark's Suspension Railway splint applied to-day. Up to present time there has been constant aching pain in the leg. The application of Clark's splint afforded almost entire relief.

January 21st, 1868. Clark's splint removed to-day. The fracture had united kindly. No deformity. The right leg as firm apparently as the left. The fracture was dressed about every four days.

January 26th. The patient was discharged cured.

EDITORIAL NOTES AND COMMENTS.

Errata.—Through a mistake of the printer, our epitome of the article of Dr. Wm. Mason Turner, of Philadelphia, in our last number, was placed among the Original Communications, instead of in the Editorial Department, for which it was intended.

To Our Subscribers.—We enclose with this number, the bills of those of our patrons who have not yet remitted us the amount of their subscription for the current year. To all who will remit us promptly on receipt of this number, we will continue the advantage of our cash subscription rates, otherwise we shall expect compliance with our published

terms. With some, the publication of a third Medical Journal in the city of St. Louis, may have been looked upon as an experiment, and doubts may have been entertained as to its success. To all such we would say, THE ARCHIVES is no longer an experiment. In addition to a semi-monthly and a bi-monthly, there was still room for a *Monthly Medical Journal*, and the profession have expressed their appreciation of this fact, by the liberal encouragement they have afforded us. THE MEDICAL ARCHIVES is therefore a permanent institution; its suceess is already established beyond peradventure.

The present number completes our first half year, and with it we close our first volume, to enable us to make some important changes and improvements. The changes will be of such character, as will not only materially improve the appearance of the Journal, but will, we trust, also enhance its intrinsic worth. We are determined that no labor or effort shall be spared, to place the ARCHIVES in the very front rank of American Medical Journalism, and make it in every way worthy, both a continuance and increase of the liberal encouragement already received. We feel therefore no hesitancy in requesting those of our friends who are still in arrears, to remit us promptly. We feel that we have been liberal in giving them the benefit or advantage of their doubts as to our success, and now ask that they will be correspondingly liberal in return, and send us not only the amount of their subscription, but if possible, the names of one or more new subscribers, with which to commence our new volume. Our constant effort shall be to furnish a journal in every way worthy the encouragement of the profession, and one which our patrons may without hesitancy, recommend to their friends as worthy, both their perusal and their support.

BACK NUMBERS WANTED.—Although it was supposed that a a sufficient number of copies of our journal had been provided

to meet all contingencies, owing to the large increase in our subscription list, of persons wishing the back numbers, we have entirely exhausted our *first number.* We will pay *twenty-five cents, either in cash or by credit on subscription,* for copies of this number, and also for a few copies of No. IV. Will those of our friends who do not file their numbers please oblige us by responding.

We are pleased to see, that notwithstanding the *hard times,* of which we hear almost universal complaint, our exchanges of the New Year come to us, bearing such evidences of prosperity, and in some instances, with the inauguration of such decided improvements, that we can alone interpret as evidence of their appreciation, and more liberal encouragement, by the profession. This is as it should be. There is no other means by which so large and varied an amount of useful information can be furnished to medical practitioners, as through the medium of *a well conducted Medical Journal,* and it has sometimes appeared strange to us, that so comparatively few of the profession seem to appreciate, and practically recognize this fact.

Few general practitioners have the time, or inclination to wade through the ponderous volumes with which medical literature abounds. It is the object of a well conducted medical Medical Journal, to cull from all sources, the new and useful in the great field of medicine, and lay before its readers regularly, carefully prepared literary food, in small packages and easy of digestion; such as he can con, with both pleasure and profit, during the odds and ends of time, not devoted to the active labors of his profession. In this way, if he desires to keep pace with the advances and improvements of the profession, he can have brought to him many a practical hint, and useful lesson, of which he must otherwise remain in told ignorance.

A writer in *The Canada Medical Journal,* asks "why is it,

that in a large country like Canada, with its many thousand practitioners, such a comparatively few are subscribers to a Medical Journal, and so few—very few—are contributors?" With us certainly, this same question is equally pertinent. "In England, Scotland and Ireland," he says, "there is scarcely a practitioner of any grade, who does not subscribe to one Medical Journal at least, and in the large towns two or more, are taken. In London alone, with its 2,650 practitioners, a large proportion take three weekly Journals, besides several others of a more or less scientific character. The consequence is, every one knows what is going on around him."

Nothing, save an elevation of the standard of requirements for graduation, can do so much to elevate the standard of scientific intelligence in the profession, as a just appreciation and encouragement of well-conducted Medical Journals. As the former can, or could only affect the rising or future generation of practitioners, it is to the latter we must look, to benefit those already in the field. It is unfortunately the fact, that medicine has not yet been elevated to rank as one of the *fixed sciences*, and until that can be done—until an ultimate fact shall be determined in medicine, such as *gravitation* in physics, or *affinity* in chemistry, we cannot always conform practice to theory, but must too often be governed by practical experience, and seek for a theory to conform thereto. So long then as medicine remains a progressive science; so long as continuous research, with the aid of new lights of science, develops new discoveries, so long will old theories change, and new ones be originated; and it is often, by a careful aggregation, and scientific comparison of our individual experiences in their application to the treatment of disease, that the truth or falsity of theories can alone be determined. Unfortunately, we are but too apt to undervalue our own experience, while the truth is, there is scarcely an intelligent observer any where, however hum-

ble his sphere, who has not met with something in his practice, which may be both new, and edifying and useful, to even the most eminent in our profession.

Now there can be no question as to the fact, that if we had more readers, there would be more contributors. The influence, as also the aim of *Medical Journalism* is to encourage practitioners, both in country and city, to record briefly, but honestly and faithfully their *practical* experience. In this way practitioners in different parts of the country can enjoy an interchange of opinions, and experience, not otherwise attainable, and while each has an opportunity to add to his own store of knowledge, he can assist others to fit themselves more fully, for a faithful and intelligent discharge of their duties to their patients.

It is notorious that reading begets a fondness for reading. The reading of one journal will lead to the reading of others; and if intelligent members of the profession are in earnest in their desire to co-operate for the general good, and the elevation of the standard of scientific and general intelligence in the mass of the profession, they should encourage by every means in their power, a more general dissemination of a sound, practical medical literature. Let them not only encourage the reading of Medical Journals, but the writing for them. What we most want, is not so much metaphysical disquisitions, and theoretical deductions, as the result of the plain, practical, common sense application, of theoretical teaching, to the treatment and cure of disease.

We appeal then to all the liberal minded of the profession who have at heart its interest, and desire its scientific advancement, to lend their aid and assistance towards the maintenance and improvement of Medical Journalism.

There is scarcely any intelligent physician, who cannot induce one or more friends, to subscribe for a Medical Journal, and record for it the interesting or important results of their practical experience. Such effort would require of each individual but little labor, while it could not fail,

largely to increase the numbers, alike of subscribers, readers and writers, and not only inaugurate a new era in American Medical Journalism, but do more to disseminate correct theory and sound practice in the treatment of disease, than could possibly be effected by any other means.

THE WESTERN JOURNAL OF MEDICINE, comes to us enlarged from 64 to 76 pages. The Editor "desires to make this enlargement a permanent arrangement, and shall certainly do so if his subscribers will bestir themselves and procure a sufficient additional number of subscribers." It contains a clinical lecture on DYSMENORRHŒA, by Prof. M. B. Wright, of Cincinnati, Ohio, in which he is severe in his denunciation of surgical interference, and sums up in conclusion, as follows:

You have understood me to say, that in my opinion, most cases of dysmenorrhœa are to be treated as neuralgic, and that more cases yield under the influence of quinine, given as an antiperiodic, than any other medicine.

2. The pain of menstruation is not always in the uterus. It may be in the ovaries, bladder, rectum or some morbidly sensitive tissue in the pelvis.

3. Inflammation may exist, as well as congestion, requiring nothing more than the treatment usually employed for the relief of these conditions.

4. Membranous dysmenorrhœa may be more easily prevented than subdued. The application of leeches to the neck of the uterus, and the administration of quinine, in anticipation of the catamenial function, claim your careful consideration.

5. Closures, or contractions of the cervical canal to such a degree as to prevent a painless flow of the menses are so rare, as to justify their exclusion from the causes of dysmenorrhœa.

6. Uterine tumors, pendulous or otherwise, belong strictly to the surgeon, and should not be associated with dysmenorrhœa. Besides, their presence is mostly attended by profuseness rather than scantiness of discharge.

7. Too little attention has been paid to the irritability and contractility of the muscular fibres surrounding the uterine extremity of the cervical canal. Very often they act, seemingly as a sphincter, resisting the passage of the uterine sound into the cavity of the uterus. A tendency to contraction is doubtless increased by menstrual excitement, and when spasmodic action occurs, pain is the consequence. The remedy

most efficacious in those cases, is a combination of quinine with morphine, camphor, or some of the anti-spasmodics.

We transcribe from its pages, the following in regard to the TREATMENT OF MALARIAL DISEASES BY THE HYPODERMIC INJECTION OF QUINIA.

At the New York Hospital and in Bellevue, the hypodermic injection of quinia is used quite extensively in the treatment of intermittent fever and malarial neuralgia. At the former institution, the formula used is as follows:

"Take of sulphate of quinia, 60 grs. Dilute sulphuric acid, 40 minims. Distilled water, 1 fluid ounce. Mix, make a solution, and filter with the greatest care.

Thirty-five minims are equal to 4 grains of quinia. Or the solution may be varied by the addition of 4 or 6 grains of sulphate of morphia. This combination renders the injection less painful."

At Bellevue, we use an æthereal solution of quinia, of the strength of 1 gr. to 2 minims. It is made in the following manner: Mix 364 grs. of sulphate of quinia, with 1 pint of water; add dilute sulphuric acid, and after all the quinia has dissolved, another pint of water. Now add cautiously aqua ammonia, until after brisk stirring, and blowing over the surface of the liquid (to dissipate any ammonia which might have collected there, as it would interfere with the "test of smelling,") there is a faint odor of ammonia still perceptible. Throw the whole on a filter, and wash with cold water, until the washings are tasteless, (requires about 12 to 15 washings). The pulp which now contains quinia, sulphate of ammonia and water, is transferred to a graduate, mixed with 6 or 8 oz. of æther, and immediately, while in a state of fluidity, transferred to a glass-stoppered vial of about 14 oz. capacity. The graduate should be rinsed with a little æther, and this added to the remainder. The vial is now to be well shaken, water to be added to the amount of about 4 oz., and frequently shaken during 4 hours. Finally, by letting the vial rest for some time, there will be two layers, the upper, æthereal, containing the quinia, and the lower, watery, containing the sulphate of ammonia. Separate the upper from the lower, and keep it in a well stoppered bottle, after having concentrated it to the required strength. Three hundred and sixty-four grains of sulphate of quinia, correspond to 324 grs. of quinia; therefore, if we evaporate the æthereal solution to 324 minims, one minim will represent 1 gr. of quinia. The separation of the two layers may easily be effected in a male syringe without piston, by closing the orifice by the finger, filling it with the liquid, waiting until the two layers are well established, and then withdrawing the finger, and allowing the

lower layer to flow away. One grain to one minim makes a too glutinous solution, therefore we use the strength of 1 grain in two minims, and generally inject 8 minims morning and evening. This will sometimes give rise to a small abscess, and causes considerable pain in some, but these are the only evil results from its use. We certainly have had great success with it in summarily breaking up an attack of intermittent fever.

THE NEW ORLEANS JOURNAL OF MEDICINE, is a new quarterly consolidated from the New Orleans Medical and Surgical Journal, and the Southern Journal of Medical Sciences. It contains the first part of an able and very interesting article, by Prof. Wm. Hutson Ford, of the New Orleans School of Medicine, on the "PATHOLOGY OF PASSIVE CONGESTION, AND ITS RELATION TO ASIATIC CHOLERA," which we will perhaps notice more fully on some future occasion. It also contains an interesting lecture by Prof. D. Warren Bricknell, of the same school, upon "ECLAMPSIA; OR PUERPERAL CONVULSIONS." Their causation—"the essential vitiation"—he says: "remains a secret yet to be discovered. For myself I distinctly incline to the belief that it lies in the blood, and may be the result of the establishment of the condition called pregnancy, or of interruption of elimenation of fœtal debris, or of disease, whether pre-existent or intercurrent, or of hereditary infirmity. * * * * My own theory about the matter is, that the first spasmodic act is connected with the glottis, that it exists throughout the paroxysm, and that all other spasmodic acts are vastly inferior in importance. * * * * Spasm of the glottis is but one of the muscular phenomena we witness. Through this spasm it is true that respiration is vastly impaired, and that blood vitiation must increase, but from tracheotomy we could only hope for mitigation of existing trouble; the *cause* of the general spasm lies hidden still."

After considering the treatment at length, he sums it up as follows:

1st. If the woman is in labor, while it is meet that we remove any incidental cause manifest, let us make speedy delivery our prime object, and let us effect it by the simplest means possible, always, however, bearing in mind the fact that delivery is not to be delayed, because no means of delivery is as dangerous to mother and child as continued Eclampsia.

2d. If the woman is seized with Eclampsia during gestation, remove the incidental cause if possible. If the spasms recur notwithstanding, the cause being removed, chloroform or opium, or the kindred remedies, may now arrest them. If they do not speedily do so, delivery is preferable to delay. If

the child in such case is strictly viable, the more forcible the indication.

3d. If the wôman is eclamptic during gestation, or in labor, because of general vitiation, as is uræmia or malarial poisoning, delivery is the best chance she has for recovery. These are the worst cases we encounter, and are not to be expected to yield to anything short of delivery. Such vitiations *plus* a prominent and immediately removable incidental cause may exist however, and the removal of the latter may arrest spasm and enable gestation to be completed. The obligation to save the child demands the effort alluded to.

4th. If Eclampsia is *threatened* during labor, delivery is imperatively demanded, as to wait for the development is to invite complication. If the threat exists during gestation, look earnestly for removable of incidental causes, and remove them if found.

And as regards prognosis concludes as follows:

The prognosis in Eclampsia is a matter calling for careful study. Prognosis and treatment are in direct relation with each other.

1st. The prognosis is more and more unfavorable as the intervals between the spasms are shorter. Under frequently repeated spasms the brain more rapidly succumbs, and exhaustion from muscular action is not only more speedy, but is cumulative. We may, then, where the spasms are recurring at intervals of two to six hours, find no indication for *speedy* action; whereas, if they are recurring every five or thirty minutes, ction is the word.

2d. The prognosis is graver as intellectual annihilation is more profound and more persistent. In other words, the demand for action is more imperative as the intellect is more completely and permanently obtunded.

3d. The prognosis is graver in the subject of manifest blood vitiation, as in uræmia or malarial poisoning, and I think still graver where, with such vitiation existing for months during gestation, the spasms supervene on labor.

4th. The greater the duration of the paroxysm of spasms, the graver the prognosis.

5th. The longer the patient is allowed to remain the subject of Eclampsia, the graver does the prognosis become.

6th. The prognosis is rendered graver by the existence of any acute or chronic concomitant disease, or of any constitutional frailty.

7th. The prognosis is rendered graver by the existence of a manifest incidental cause which cannot be removed.

The "Chronicle of Medical Science" contains much useful

and instructive matter, some of which we will take occasion to lay before our readers. The journal is ably conducted, and worthy the liberal patronage of the profession.

The Quarterly Journal of Psychological Medicine, has entered upon its second volume. Its typographico-mechanical execution, is second to that of no journal with which we are acquainted, and the well known ability of its efficient editor, Prof. Wm. A. Hammond, may be accepted as a guarantee of the excellency of its literary department. The present number contains a lengthy article by Dr. Hammond, "On the Influence of the Maternal Mind over the Offspring during Pregnancy and Lactation," in which he takes a decided stand in the affirmative, and narrates a number of instances—some of them seemingly well authenticated—confirmatory of his position. Every medical practitioner is doubtless aware to what extent, this belief obtains, not only with the ignorant and unlearned, but also with educated and intelligent persons outside of the profession, and there is scarcely a midwife or old woman to be found, who cannot narrate a dozen cases corroborative of her belief. Notwithstanding all this we think, the opinion of the intelligent members of the profession generally, is, and always has been, antagonistic to the existence of such influence. The arguments of Dr. Hammond are ingenious, and forcibly and well put, but we question much whether they will carry with them, to many of the profession, a conviction of the correctness of the opinions of the able writer. It also contains an excellent article on "Early Education," by Henry Courtnay Atwood. M. D., A. B., Trinity College, Dublin, which is well worthy careful perusal, not only by physicians, but by all who have the charge of children, from their earliest infancy up to years of maturity. He takes strong grounds in favor of an inductive education, from the very earliest infancy; urges the importance of the early instillation, both by

example and encouragement, of correct ideas, and right principles. Punishment should be rather negative than positive, and should consist rather of an expression of grief, than of anger. Delicate health, he says, can be no excuse for the neglect of this sort of education, which should never be of a forced character, but essentially inductive. The great secret of success in teaching, consists in the ability of the teacher to place his mind on a plane with the pupil, so as to lead him along as it were by the hand;—encouragement should replace punishment as far as possible.

In conclusion, he says, the education of children should commence from their birth. Kindness and firmness should be the means adopted for their guidance, and above all, the examples set to them should be good. By degrees, knowledge should be imparted gently and patiently. As the mind unfolds it should be supplied with material suited to it. No pains should be spared in assisting the child to acquire and arrange his ideas; he should be carefully taught and not merely examined in the subjects of his studies and he should be led to feel that all these efforts are being made for his own happiness and advantage.

The Medico-legal department is highly interesting, and the entire journal abounds in useful and instructive matter. It is certainly worthy a liberal encouragement, both from the medical and legal professions.

The American Journal of Medical Sciences.—This favorite old quarterly, edited by Isaac Hays, M. D., and published by Henry C. Lea, of Philadelphia, which has now reached its No. CIX—New Series, comes to us freighted with its usual amount of highly interesting, useful and instructive matter, of which it comprehends more than any other journal with which we are acquainted in the English language. We shall have frequent occasion to refer to, and draw upon, the wealth of material with which it abounds. The enterprising publisher agrees to furnish "The American Journal of Medical Sciences," (quarterly); "The Medical

News and Library," (monthly), and "Ranking's Half Yearly Abstract," the whole containing over two thousand pages per annum, free of postage, for the small sum of Six Dollars. The publisher rightly says, that this enormous amount of valuable practical matter, is presented at a price without example in the annals of Medical Journalism.

To parties ordering these journals through us, we will furnish the ARCHIVES for the additional sum of *two dollars*, making in all, but *eight dollars for four first class Medical Journals.*

THE SAINT LOUIS MEDICAL AND SURGICAL JOURNAL.

This excellent bi-monthly enters upon the new year in an entire new dress, and is gotten up in a style creditable alike to the editors and the publisher. Among the contents of the present number we notice an article on SYPHILIZATION, by Dr. J. Z. Hall, of this city, which in our opinion promulgates doctrines so at variance with the generally accepted theory in regard to this disease, and withal so dangerous, that they should not be allowed to pass unnoticed. We do not propose a formal review, nor an argumentative refutation, nor even to notice seriatim its numerous fallacies and inaccuracies, but will merely call attention to several points or features of the article, and then subjoin some facts, the practical application of which, we will leave the reader to make for himself.

The writer speaks of theory being made to modify facts. This is an impossibility. Theory *cannot* modify facts, but a misinterpretation of facts, or false deductions from them may be made to *modify theory*, or originate new theories, alike false, dangerous and absurd. We had thought that there was scarcely any fact in scientific medicine more thoroughly established, both by practical experience and experimental demonstration, than the *duality* of syphilitic and chancroidal virus. For an exhaustive argument on this subject, we will refer the reader to the most excellent treatise on venereal diseases, by Prof. Bumstead, of New York—unquestion-

ably *the best work* on this subject, in the English language. By reference to this work it will be seen that the writer's statement, that "the dualistic theory is based upon the curative effects of suppurative syphilis," is totally incorrect.

Dr. Hall seems to have been peculiarly unfortunate in the selection of his typical case, illustrative of the treatment, and, of the 'correctness of his theory. The constitutional symptoms described—engorged glands, papular eruption and ulcerated mouth and throat—are those assigned by all syphilographers to the second stage of the disease. Their existence after four years medication is, to say the least, most extraordinary. The persistent "chancre on penis—which had been cauterized and healed some time, but would break out again," after four years treatment, is equally extraordinary; and no less so is the statement as to the condition of the "inoculations","—March 10th.—Sore on thigh as large as a quarter of a dollar, whilst those on the arms were only about the size of a dime (silver); the former secretes a sanious pus; the secretions of the latter are white, and without odor." If the virus was the same, (which it must have been, if the writer's theory be correct, even though derived from different sources,) why the difference in the effects? Now, I am free to say, that the case as presented does not afford a particle of conclusive evidence that the patient ever had syphilis, not even by "inoculation." The behavior of the sore on the penis was more like herpes than chancre; induration would almost necessarily follow the frequent cauterizations, and all the other symptoms can be readily explained without resorting to the *theory* (we cannot call it more) of syphilis.

It will be observed that the leading "proposition" deduced from the writer's "observations for the last ten years" is, that "Syphilis is a zymotic disease; i. e., self-curative when allowed to complete its own movement."

Upon the truth or falsity of this proposition, depends not only the truth or falsity of his following propositions, but

of his entire theory. As a refutation of this, we submit, without comment, the following, from the *London Medical Times and Gazette*, of Nov. 30, 1867. The reader may make his own application.

THE COURSE AND EFFECTS OF SYPHILIS WHEN UNTREATED BY ANY REMEDIES.—We have reason to believe that the papers which have appeared from time to time in this journal, have done something towards advancing the knowledge of syphilitic diseases in this country; and we take an opportunity of stating afresh, in a concise way, what we have mainly endeavored to inculcate. While mercurialists and non-mercurialists have ranged themselves in two opposing factions, and have been energetically arguing their respective claims, and advancing their own line of facts, it would almost seem as if one important matter had been well nigh lost sight of altogether. Syphilis is a disease depending upon the evolution and development of a specific blood poison, and like all the other diseases with which it is in these respects allied, it is liable to great variety in the severity and character of its morbid manifestations. Nobody is likely to deny this with regard to small-pox and scarlatina, for example. In these disorders such differences are everywhere recognized, and we accordingly speak of any given case as simple, benign or malignant, according to the severity or otherwise of its symptoms. Those who have enjoyed the largest field for the observation of syphilitic disorders, and who have had the best opportunities for watching the natural evolution of that disease, can not avoid perceiving that we want less of statement and more of results impartially drawn from a series of comparative observations. A great deal of hasty generalization would then be swept away, and we should not have men confounding the natural products of a severe type of syphilis, with those artificially induced processes resulting from mercury. It can not be too strongly urged that syphilis tends to run a pretty regular and definite course, and that great differences exist in the severity of the manifestations in different cases, irrespective of drugs —specific or otherwise; that the milder forms of the disorder frequently recover under all plans of treatment; that some cases —where there is no such disturbing element present as mercury to accuse as the cause—are extremely severe, and a few even die from pure syphilis or of the asthenia induced by that disease; and lastly, that it seems to be practically pretty well settled that mercury, on the whole, is, nevertheless, the most reliable agent we possess for its treatment. While we quite agree with those who think that mercury is capable of exerting a baneful influence in some constitutions, and in certain forms, stages, and variations of this disease; and while we would ex-

tend the most ample field for liberty of action, and regard scepticism in all matters not yet proved, as the first step towards getting them proved, we do not consider extravagant statements, advanced by advocates on one side or the other, calculated to lead to any good, and least of all to the good of science. It was fortunate for one individual who, disbelieving in such a thing as syphilis at all, and for a great number who refer all the worst forms of it to the drugs employed, that some of the members of the late Admiralty Commission, we learn, had the opportunity of seeing a soldier patient in whom the constitutional effects of syphilis were so formidable that he died of that disease within six months of contracting the primary lesion; and in that case, at any rate, no mercury whatever had been exhibited. We gather some important facts from Dr. Paynter's report on the French troops serving in Algeria, bearing on this subject of the effects observed in the natural evolution of the disease. The paper is to be found in the sanitary section of the new Army Medical Blue-book. Dr. Paynter says that among the native Arab population syphilis is the only really prevalent disease, both in the towns and in the country districts. As a general rule these people never seek any advice or treatment; and one meets with most dreadful objects suffering from the malady in its various forms. Extensive disease of the bones, where no kind of treatment had been at any time adopted, is frequently met with amidst these people. The appearance of some of the sufferers, even to those accustomed to witness disease, is described as most revolting. One French army surgeon had seen a native woman, the bones of whose face had been completely ulcerated away by the disease now under consideration. She had never received any treatment whatever, either for the primary or other stages of the affection. Where these native people first contracted this disease, or how it was introduced among them, it is difficult to form any idea; but it is quite evident that it exists to a most lamentable extent, and may, with other causes too numerous and varied to define, eventually and at no distant period, exterminate the subdued tribes from the face of this most beautiful country.

In the report of the proceedings of the International Medical Congress, in the *Union Médicale*, we find the following:

M. Ricord was saying that "he could desire nothing better than to believe in syphilization. From the outset of the alleged discovery by M. Auzias-Turenne he had said, if syphilization were a reality it would follow that the soft chancre was to the hard chancre what vaccinia is to variola. M. Auzias-Turenne

would be the Jenner of syphilis, and would have statues erected to him. But, unfortunately, the vaccinia of syphilis has not yet been found, and the pox still awaits its Jenner. If M. Auzias-Turenne believed in syphilization, let him syphilize himself. Quite enough patients had purchased with their health—even with their lives—the pretended benefits of syphilization."

At this moment, a member of the convention, getting up on one of the benches of the amphitheatre, and stretching out his arms, cries out twice, in a voice of thunder, "I am a physician—syphilized—and I am in good health." (Prolonged merriment.)

(A voice from the auditory.) "Why has not M. Auzias-Turenne syphilized himself?"

(The previous speaker.) "M. Auzias-Turenne has not renounced marriage. As for me, I have renounced it. What father, what mother would be willing to give a daughter to a syphilized man?" (Laughter.)

M. Ricord.—"Nay, if syphilization be a guarantee, syphilized subjects would be much sought for as family men." (Laughter.)

M. Auzias-Turenne.—"I have offered to make experiments before a commission; but my demand has always been rejected. It is desired that I make the experiments on my own person. I refuse from self-respect, not being willing thus to place myself at the disposal of M. Ricord and M. Bouillaud, for the sole purpose of gratifying their curiosity, and being afterwards the butt of their pleasantries." * * * * * *

In the midst of a warfare of words between M. Ricord and M. Auzias-Turenne, M. Crocq remarked that the pending discussion was widely divergent from the question of the day, which was this: "Is it possible to propose to the different governments any effectual measures for checking the spread of venereal diseases?"

A delegate from the Belgian Government—would it be acceptable, he asked, for him to propose to his government to syphilize all the Belgians in order to check the spread of syphilis in Belgium? (Laughter.)

M. Crocq demanded that the discussion be closed. It was, however, continued through the succeeding session.

From the same authority we extract the following:

"These two sessions were, from beginning to end, a long ovation, and a continuous triumph. The illustrious syphilographer may be said to have received on these memorable days the acclammations of the entire world, the crown of his splendid career."

In conclusion we would say, that we are informed by the surgeon in charge of our City Hospital that the "treatment of syphilis by inoculation," that was being practiced in that institution when he was placed in charge, was conducted in such an unscientific manner, and with such unsatisfactory results, that he very soon ordered its discontinuance.

Since penning the foregoing, we notice the following in *Braithwaite's Retrospect*. Syphilization has been placed well and impartially on trial at the Lock Hospital in London, and the conclusion come to is, that it is not a plan of treatment which should be recommended for adoption. Even admitting that it has the advantage claimed for it by its advocates, (which it has not), the surgeons of the above hospital are of opinion, that these are quite insufficient to compensate for the loss of time, personal discomfort, *and indelible traces which it entails upon the patient.*—(*Medical Times and Gazette*, July 27, 1867, p. 105).

The italics are our own.

The *Chicago Medical Journal* has entered upon its twenty-fifth volume, changed to a semi-monthly, thus by its enlargement and more frequent issue, giving ample evidence of a merited appreciation, and liberal encouragement by the profession. The present number is very neatly and prettily gotten up, and contains a large amount of choice original and selected matter. "This semi-monthly," says the editor, "is already an established fact, and its success as such placed beyond contingency."

Many more—indeed most of our exchanges, merit more than a passing notice, but want of space prevents the possibility of a separate notice of each. We shall welcome them regularly to our table, and hope sincerely that they may all receive a liberal patronage, and meet with continued success.

BIBLIOGRAPHICAL NOTICES.

Signs and Diseases of Pregnancy. By Thomas Hawks Tanner, M. D., F. L. S., Member of the Royal College of Physicians, &c. From the second and enlarged London edition. Philadelphia: Henry C. Lea. 8 vol. pp. 482.

Remembering of what common occurrence is pregnancy, and how immediately and long its signs and diseases have been under observation, we might reasonably suppose that this was rather an uninviting field for new observation, and yet the appearance of this new and enlarged edition of Tanner's very popular work on this subject, would indicate otherwise, while even a cursory perusal of its pages manifests that here also great advances have been made during the last few years.

The mechanical execution of this work is unsurpassed by any publication in this country, and reflects great credit upon the enterprising publishers.

Of Dr. Tanner's ability as a medical writer, it is not now necessary to say anything, as he is well and favorably known throughout the country; and this work gives ample testimony of his ability as a close and accurate observer; and of a quality not less important, though perhaps more rare, of his trustworthiness in recording his observations; and "if books are to be received as spectacles with which to read nature," this perhaps will be found to produce as few false lights as almost any work on the subject of medicine; and yet it is not without its faults.

In the first place, it is too prolix. Signs and symptoms, often absent and when present of little moment, are magnified beyond their true importance; and a marked fondness is observed for the marvelous. Dubious facts occupying the outposts of scientific credibility are served up with care, while the rehearsal of worthless, idle theories, crude guesses of ignorant men or credulous crones, that were never worth repeating, and should be forgotten—indeed it were often a virtue never to have heard of them—swell unnecessarily his pages. Of what possible importance can it be to know that one

Venetti promulgated seven chief rules for procreating the sexes at will, one of which was, that coition should take place when the wind is in the north, or that in the "Woman's Booke," or the "Birthe of Mankinde," certain maudling, simpering signs, are given for determining the sex of the child during pregnancy. We object to these things, not because we suppose them to belong to the *ultima thule* of scientific research, but because they are the worthless vaporing of ignorance and credulity, and were never worth knowing.

The part devoted to the rational and physical signs of pregnancy is an able resume. Its fault is, that too much importance is given to a sign, the presence of milk in the breast, not always present, and when present, not by any means necessarily connected with pregnancy. Now it is well to know that many conditions beside pregnancy may cause the secretion of milk in the mammary glands, in greater or less quantity, while it constantly happens with some women that there is not the least secretion of milk until near the close of gestation.

Of much more importance is the coloring of the areola around the nipple, and the darkened tint of the vaginal mucous membrane. They may possibly be produced by other causes, but are never absent in pregnancy. After all, we are thrown back upon the physical signs for positive proof of this condition, and these, palpation, percussion, auscultation and ballottement, Dr. Tanner has very ably presented. His prescriptions are rather awkwardly gotten up, and, in our opinion, their material not always the best that might have been selected.

Against his almost entire treatment of Eclampsia we must enter our earnest protest. He ignores the lancet—a very sheet anchor—in this frightful affection, and in many cases to neglect free bloodletting is to shut the gate of hope for the unfortunate patient. For it, there is no substitute. Chloroform and opium are valuable adjuncts, but to rely upon them, to the exclusion of venesection, is to consign

our patient to inevitable destruction. [We cannot but think that our reviewer has overlooked the value of local anæsthesia—the application of chloroform to the spine—in this class of cases.—Ed.] But Dr. Tanner has fallen into this error in treatment, from adopting—in common with many authors—erroneous views in regard to the nature of the pregnant condition; considering it a pathological state and one marked by debility. Pregnancy is not a pathological state but a physiological condition—one in which the functional activities are exalted, not depressed, and the lancet more often demanded, than a stimulant or roborant treatment indicated.

Notwithstanding these and many other minor errors, this is a most excellent work, and should be on the table or in the library of every practitioner. M.

Treatise on the Diseases of the Eye, including the Anatomy of the Organ, by Carl Stellwag Von Carion, M. D., Prof. of Opthalmology in the Imperial Royal University of Vienna. Translated from the Third German Edition, by Charles E. Hackley, M. D., and D. B. St. John Roosa, of New York. New York: William Wood & Company.

The American Medical profession is deeply indebted to the translators for the precious gift they offer.

We are familiar with this standard work from its first edition, and we feel highly gratified to see it made acceptable in its completest form to the American profession. It is not only one of the best works in the *German Literature*, but is one of the best in the entire opthalmological literature of the world. The minute anatomy preceding each chapter is excellent—embodying not only the author's numerous original investigations, but likewise presenting the results of the most recent investigations of all other distinguished writers on this subject.

The anatomico-pathological investigations and descriptions,

illustrated by numerous plates, form a prominent feature of the work, and are an addition not only timely but absolutely indispensable in our days, notwithstanding they are so frequently omitted in other meritorious works.

There is not a chapter in the entire book that does not clearly evince the most scrupulous and conscientious attention of the author, and is not complete in the details of which it treats. Our only fear is that this work will prove too scientific for the profession at large. We should, however, be greatly pleased to discover our fears to be groundless; for not only do we wish to see this work largely adopted among us, but we also desire that success shall crown the industry and labor of the translators, and the enterprise of the publishers.

All who have true science at heart should possess a copy of this valuable work. H.

MECHANICAL THERAPEUTICS. A PRACTICAL TREATISE ON SURGICAL APPARATUS, APPLIANCES AND ELEMENTARY OPERATIONS, &c. By PHILIP S. WALES, M. D., Surgeon U. S. N. Philadelphia: Henry C. Lee.

This is a most complete and elegant work of 673 pages, and is certainly well deserving of the commendation of every American surgeon.

This work, besides its usefulness as a reference for practitioners, is most admirably adapted as a text-book for students. Its 642 illustrations in woodcuts, represent every manner of surgical appliance, together with a minute description of each, the name of its inventor, and its practical utility in mechanical surgery. There is, perhaps, no work in the English language, so complete in the description and detail of surgical apparatus and appliances as this one. The entire work entitles the author to great credit for his clear and distinct style as a writer, as well as for his accuracy of observation and great research in the field of surgery.

Yet, in paying Dr. Wales the best compliment to his work, we can hardly excuse his omission to mention the merit of some of our Western surgeons, who have contributed so much to surgery in the last few years. We observe nowhere in this work—designed to be so complete in surgical apparatus—the wire suspension splint of Prof. J. T. HODGEN, of this city, for treating simple, and especially compound fractures

of the femur. We are the more especially surprised at this, since this apparatus has been deemed worthy a place in the list of U. S. Army supplies. Neither does he mention Dr. GIBSON'S ring, for treating fractures of the patella, which we regard as the most perfect method of treating this class of fractures. We observe also that he has omitted to mention Dr. BRAINARD'S method of treating ununited fractures by means of the gouge, which has proved so successful in the hands of many Western surgeons, in treating this class of fractures. With these exceptions we have no fault to find with the work, but earnestly recommend every member of the profession to add a copy of it to his library, with the assurance that he will find some useful suggestion in the treatment of almost every surgical case that may come under his observation. C.

A PRACTICAL TREATISE ON THE DISEASES OF CHILDREN. By D. FRANCIS CONDIE, M. D. Fellow of the College of Physicians; Member of the American Medical Association; Member of the American Philosophical Society, &c. Sixth Edition, Revised and Enlarged. Henry C. Lee, Philadelphia.

It would seem superfluous to again recommend this valuable treatise on the diseases of infancy and childhood, to medical men conversant with the literature of their profession for the past decennium, during which period it has been acknowledged to be one of the most instructive and reliable works upon the subject of which it treats, that has been issued from the American Press. But as this, the sixth edition, has been carefully revised, and all of the important recent *facts* in regard to the pathology and therapeutics of infantile maladies, have been incorporated into the body of the work, we cannot do better, than to again call the attention of the profession to its many claims as a safe guide, in the treatment of the diseases peculiar to children.

It is very true, that, as yet we have no single work, that is sufficiently comprehensive and thorough upon the subject, to satisfy the demands of physicians who have a large practice among children; but we know of no man in this country who has a better right to dictate to the student and general practitioner, the proper course to be pursued in the treatment of this class of diseases, than the learned author, who has passed so many years of his life in reviewing medical works, that he is perfectly familiar with everything of value, that has been written upon the subject, and has enjoyed ample opportunity, from daily observation, of confirming or contradicting the statements

of the various writers. In fact it would have been better for one so experienced, to have been more dogmatic in his style, and to have refrained from recommending any mode of treatment suggested by the thousand aspirants for fame, unless he had had an opportunity for verifying their statement, for we canot believe one-half that we read, even in medical journals; and the student must be very much at a loss to ascertain the most reliable method of treating any case, if he consults many of the text-books, for in them the most opposite plans are recommended to be pursued.

Coinciding, as I do, with the author in most of his views, I cannot agree with him in still urging the necessity for blood-letting in so many cases, for although the majority of the *writers* of the present day still adhere to the idea of thirty years ago, very few *practitioners* really resort to the use of the lancet with children. Most of us know too well that the very young bear the abstraction of blood badly, and only a very few cases actually demand the loss of blood at all, and in those cases we can generally do as much good with leeches and arterial sedatives (which lessen and regulate the heart's action without weakening it), as we can by free depletion, and by that means avoid impoverishing the vital fluid by increasing its watery constituents and diminishing the red corpuscles.

In regard to the use of blisters, another remedial means of great value in many cases and under appropriate conditions, the directions so often repeated throughout the work are very judicious and necessary for the student. All blisters should be watched carefully, and with children, the cantharidal tissue or collodion is much safer and more convenient than the Emplastrum Cantharidis, and we need have but little fear of strangury from them. As stated in the preface, all vague theories have been excluded from the work, and the author has contented himself with recording well established pathological facts, and suggesting plain therapeutical indications. It is what it claims to be, a practical treatise on diseases of children. K.

THE TREATMENT OF DISEASES OF THE THROAT AND LUNGS BY INHALATION, WITH A NEW INHALING APPARATUS. By EMILE SIEGLE, M. D. Translated from the second German edition by S. Nickles, M. D., Cincinnati: R. W. Carroll & Co., 1868.

A valuable little work on the treatment of the Lungs and Throat, which deserves attention from those practitioners, who are not specialists in this branch, and have no time to study larger works. After an introduction setting forth the

modern improvements in the treatment of said diseases, the author gives a history of inhalations and of the different apparatus used, minutely describing his own, in which the motive power is steam. Then follow remarks about the mode of administering inhalations, the medicines used, &c. The writer then describes the diseases of the nose, palate and pharynx, larynx, bronchi and lungs, with particular reference to inhalations. A special paragraph is devoted to hemorrhage of the respiratory organs, and another to a summary of the medicines employed in inhalations. It concludes with an appendix and advertisement of new instruments for inhaling medicines, and sprays. We take pleasure in recommending it as above.

C. H.

We have also received from the publishers:

Diseases of the Lungs and Air Passages: their Pathology, Physical Diagnosis, Symptoms and Treatment. By Henry William Fuller, M. D., Physician to St. George's Hospital, London. From the second and revised edition. Philadelphia: Henry C. Lea. 1867.

Spermatorrhœa; its Causes, Symptomatology, Pathology, Prognosis, Diagnosis, and Treatment. Second and revised edition. By Robert Bartholow, A. M., M. D., &c. New York: Wm. Wood & Co.

The Transactions of the Illinois State Medical Association.

The Half-Yearly Abstract of the Medical Sciences, being a Digest of British and Continental Medicine, and of the Progress of Medicine and the Collateral Sciences. Philadelphia: Henry C. Lea. January, 1868.

Braithwaite's Retrospect of Practical Surgery. Part LVI. New York: W. A. Townsend & Adams, 434 Broome street. January, 1868.

Half-Yearly Compendium of Medical Science. Part I. Philadelphia: S. W. Butler, M. D., and D. G. Brinton, M. D. January, 1868.

Which with other works will be noticed in our next number.

MISCELLANEOUS.

[From the Chicago Medical Journal.]

International Medical Congress.—Convened at Paris, August 16th, 1867, at 2 o'clock P. M. [Continued.]

Session of Monday, August 19th. Anatomy, Pathology, and Physiology of Tubercle continued.

M. Empis defended his ideas upon granulation. His discourse was simply a resume of his book.

M. Empis had made a great number of inoculations upon animals, and has been able to make granulations appear in rabbits, by employing morbid products of divers character, as the pus of puerperal peritonitis, matter from Peyer's glands in typhoid, pus of pneumonia, etc.

And although these granulations are similar to those of tubercle, M. Empis does not admit that they constitute this affection with the rabbit, for the granulation of tubercle is a general affection. He had never seen true phthisis developed from the above experiments.

M. Cornil said: The essential and fundamental points in the history of tuberculosis was the development of tubercular granulations that we would continue to call *true tubercle.*

In serous membranes, and particularly in the pia mater, one may see admirably this development in the adventitious sheaths of the vessels, and in the lymphatic sac which surrounds them.

It is in this lymphatic sheath, and circumscribed by it, that is effected at the expense of elements of the sheath itself, and at the expense of the adventitious membrane of the vessels, the proliferation of the little cellular centers which constitute the beginning of tubercular granulation. It is always at the bifurcation of the vessels that these phenomena are witnessed.

It is the initial fact—the proliferation of the external membrane of the vessels, that is to say, an inflammation in the sense usually accorded to that term to-day.

Two other facts of general importance come to be added there: 1st, The multiplication of similar elements in the connective tissue of the pia mater which surrounds the affected vessel at this point, and 2d, The coagulation of the blood, the retrogressive metamorphosis of the fibrine and of the globules in the interior of the vessels in which the circulation is interrupted.

There is, then, at the commencement a phenomenon analogous to arteritis upon the little vessels and capillaries, and a coagulation of the blood analogous to that observed in phlebitis of the large veins; the consequences are striking; as the anæmia of certain parts of the brain and of the pia mater, the augmentation of the collateral pressure of the blood in the neighboring parts, the formation of pus in the meshes of the pia mater, etc.

In the brain substance, the tubercular masses can sojourn an unlimited time, and it is the same in the lungs, where the granulations very much more visible with the microscope can exist in a sort of mummyfied state many years in the midst of connective tissue. (Slate colored interstitial pneumonia.)

In the lungs, the process is more complex: at first, the vessels are altered in the same fashion as elsewhere; the septæ of the lungs show, at the expense of capillary centers, a proliferation of small elements, as around the vessels of the pia mater. But, besides, one finds in the interior of the pulmonary *alveola*, and in the interior of the bronchi, large elements, free, spherical, or pavement which fills them, and in time are subjected to granular, fatty degeneration. It is impossible to confound elements which proceed from proliferation of epithelium with those from connective tissue. The first are free and voluminous, they are epithelial cells tumefied. The second are small elements, and are agglutinated with each other by a homogenous and granular matter. The first constitutes tubercular pneumonia, the second granulation. We will not separate these two processes in their etiology; this is why we have adopted (M. Hérard and myself) the words tubercular pneumonia as preferable to all others, but as to the anatomical nature, we cannot confound them, and in this we disagree with M. Villemin.

A Hungarian, Dr. Bakody, of Pesth, in studying this question, had arrived at similar conclusions with M. Cornil. He showed a large number of designs to the members representing each of the phases of the evolution of tubercle. He said that tubercle, in an anatomical sense, was a heteroplastic neoplasma which destroys the matrix of the tissues, and shows itself habitually in a discrete form, may be in the lungs only, may be at the same time in the other organs; it may appear under the form of multiplied granulations, of the size of millet seeds, or under the form of nodosities, of larger size, constituted by the conglomeration of granulations. Under the microscope, it shows an aggregation of cells which are derived from the connective tissue. It develops itself in the connective tissue, it may be in the submucous, interstitial, in the adventitious tunic of the vessels, or enter into the texture of the cul-de-sacs and the framework of the alveola. The tubercles which have originated in the connective interstitial tissue soon pierce the partitions of the alveola, which they irritate, and thus irritation extends itself more and more along the bronchia.

In the alveoles, one finds pretty often another form of granulations, which conceal in their center only pavement epithelial cells. But as these cells of epithelium are sometimes vibratile, and as these, in the normal state, are only found in the bronchi of pretty large calibre, one can attribute their presence in the alveoles to an irritation which has extended from the bronchi.

The secondary state of irritation of the pulmonary woof is in proportion to the cellular and detrital aggregation in alveoles and cul-de-sacs. Tubercular granulations can then develop themselves under the influence of the mass of inflammatory

products which have issued by proliferation from the epithelium in a state of hyperplasie, and which irritate the tissue of the neighboring alveoles and cul-de-sacs.

This is why tubercles develop themselves by preference in the summit of the lungs, where the respiratory movements are relatively less extended, and consequently reject .less completely the cellular mass which has accumulated in consequence of inflammatory irritation.

The prolongation of the stagnation of this cellular mass may give impulsion to proliferation of cells characteristic of tubercle in the connective tissue of the alveoles and cul-de-sacs of the adjacent parts.

The alveoles may become filled with masses of epithelium and of pus, without resulting in the tubercular granulations, but it is only when the products of irritation or of inflammation have passed quickly into the state of fatty degeneration which may have been partly absorbed and partly expectorated. But if this does not arrive promptly, or if new masses succeed the first, the connective tissue which environs, becomes irritated, and tubercular granulations form as a consequence.

M. Linas combated the communication of M. Auzias, of Tu renne, upon the employment of garlic in phthisis. He recalled that, according to Celius Aurelianus, Mead, Rusen, etc., this remedy proved useful in bronchial catarrh, but that in southern countries, where garlic enters largely into the general alimentation, there was found no less of this disease, which proved the inutility of this plant against tubercle.

M. Lombard, of Geneva, renewed the question of the influence of altitude over the development of tuberculosis. He presented tables, where the proportion of oxygen received in each inspiration was calculated according to the height, and foreseeing an objection which might be made, he acknowledged that phthisis became more rare in proportion to the elevation and as one respires less oxygen. The opposite should obtain as one leaves the Equator towards the Pole, where the air is more dense, being colder.

M. Prof. Friedrich, of Heidelberg, returned to the question of the production of tubercle, nearly in accord with Corriel, but he disagreed in one point. He believes that the granulations may be produced at a distance from the vessels; that wherever corpuscles of connective tissue exist, these may divide, and proliferate and constitute little granulations. M. F. has often found upon membranes, for example, the pia mater, granulations thus formed at points distant from any vessels.

[*Query.*—How great is the distance between any two or more vessels in the vascular net work of the pia mater? We are not educated up to the point of answering.]

First Question—Second Part.—*Of the tuberculization in different countries, and its influence on the general mortality.*

M. le docteur Marmisse (de Bordeaux) presented a paper entitled "Researches upon the statistics of phthisis pulmonalis as a cause of death in the City of Bordeaux." He read some extracts. This brochure is full of documents upon the age, the sex, profession, etc., of the inhabitants who die of phthisis, and upon the time of the year when this mortality is most considerable. The influence of hygienic and social conditions are indicated in his figures. Of 1000 indigents inscribed to the "bureau of charity," 625 died of phthisis, 315 to 1000 are due to the same malady in the wards of the hospital, while, among the rich, 87 to 1000 is the ratio.

M. Sanamea advocated the importance of good hygiene as a prophylactic against tubercle. He said that bad alimentation, lack of air, of light, and of exercise, should figure among the first causes of phthisis

Then followed a memoir from M. le docteur Homan, of Christiania. This memoir was enriched with tables of statistics, and with a geographical chart, indicating the distribution of phthisis in the Norwegian provinces.

In one place, he states, that if one unites phthisis with other affections, often considered as tuberculosis, as acute hydrocephalus, scrofula, necrosis, caries, etc., it would amount to a total per-centage of 162 to 1000.

At Krugero, where he made his personal notes, 112 to 1000 died of phthisis pulmonalis, 39 of scrofula, caries, and white swelling.

If one examines separately each district, it will be seen that the mortality differs, one from the other, in the proportion of 79 to 226 per 1000. In the northern districts, on the sea, it is relatively more feeble, and does not exceed 10 per 100, except in Drontheim, and the City of Bergen, while it exceeds very much the mean average in the southern districts of the seaboard, except in the prefecture of Christiania, where it attains but 11.15 per 100. In the interior districts, the rate is not much elevated, but higher than on the northern seaboard.

Sometimes one may verify between two districts which touch, and where the climate is nearly the same, a considerable difference, which proves that climate influences do not predominate.

The difference in the extension of phthisis in the different Norwegian countries, he attributes to the difference in degree of the presence of syphilis.

After the researches of Mr. Bœck, this malady was first imported towards the second half of the eighteenth century into the districts where tuberculosis is at present most prevalent. Thus, syphilis with the ancestors became tuberculosis with the descendants.

M. Dropsy, (de cracovie). In the country that I inhabit, the air is pure, the soil fertile, the water delicious, and the temperature moderate. The inhabitants are composed mostly of peasants and Jews.

The villagers are nearly without exception healthy and robust. They are not subject to any other disease, than those of an inflammatory or rheumatic character.

The Jews, on the contrary, are nearly all scrofulous, and among them phthisis makes such ravages, particularly with those from 19 to 20 years, that if circumstances do not change, one can safely predict the extermination of this race in two or three generations.

The cause of these differences in the sanitary state of the Jews and villagers is found in the manner of living. A Jew of this country eats nearly nothing; his living costs hardly two sous per day, and this is not composed of substantial viands—seldom meat, consequently these people are emaciated, and in a state of habitual anemia and of deterioration of blood. They marry at the age of 16 or 18, which contributes to their exhaustion.

Thus, it is not the locality nor the climate which enjoy the grand role in the production of phthisis, but the general impairment, it may be, from insufficient alimentation or any other cause which results in the enfeeblement of the vital forces.

As to medication, I will say but little. The garlic recommended by M. Auzias of Turenne, makes the base of alimentation with the people in question, and I have already stated what ravages phthisis makes among them. I have incontestable success with baths of milk, but that which has succeeded best is general electrization. I apply positive electricity to the hands and feet, and negative to the top of the head and pit of the stomach. I make use of a constant current of feeble intensity, and without ceasing on account of cough, fever, or hæmoptysis. The results are excellent.

TO BE CONTINUED.

Treatment of Purulent Blenorrhagic Conjunctivitis by means of frequent injections of strongly Alcoholized Water. Gaz. Med. de Lyon. 1867.

Two cases are reported by M. Gosselin in the fifth number of the *Gaz. de Hòpitaux* for 1867, of this method of treatment. The first was that of a man 22 years of age, who had been suffering from gonorrhœa for four weeks. Five days before his entrance into hospital, he experienced heat and pain in his left eyelid, for which he was advised to bathe his eyes in his urine. Five days after this treatment, he presented himself to M. Gosselin, who found ex-

tensive swelling of the eyelid, a purulent secretion, and marked injection of the palpebral conjunctiva, and similar injection with extensive chemosis of the ocular conjunctiva. The cornea, iris and anterior chamber were normal.

The same day an injection was made every two hours beneath the lid, with a mixture of two-thirds alchohol, and one-third water.

On the following day, the suppuration had sensibly diminished; but as the patient complained that the injection caused severe chills, its strength was diminished one-half. The same treatment was continued every two hours, and a mixture containing copaiba, cubebs, and an opiate was exhibited internally.

This treatment was continued for fifteen days, when the only traces left of the disease, were a slight redness and swelling of the semi-lunar fold of the conjunctiva.

The second case was that of a man 38 years of age, in whom, without appreciable cause, both eyes had been attacked for three days previous to his admission into the hospital. His clap was of three weeks duration. Both lids were extensively reddened and swollen; the conjunctivæ were injected and chemotic; there was abundant suppuration from both eyes, and severe pain; both cornea were transparent.

An injection of alcohol and water, equal parts, was made every two hours for the first two days; on the third and fourth day, every four hours; and from the fifth to the eighth day, three times in the twenty-four hours; a collyrium of sulphate of zinc and sulphate of copper was then substituted, and an opiate mixture containing cubebs and copaiba was given internally.

In both cases, after the suppuration and chemosis had disappeared, superficial ulceration of the cornea was seen, which did not last long and was attended with no bad results.—*New York Medical Journal.*

"Hypodermic Injection.—The Committee of the Royal Medical and Chirurgical Society, have presented their report on this subject. The result of their investigations is not very conclusive, although they have experimented with a great variety of agents—Aconitine, Morphine, Atrophine, Strychnine, Quinia, Conia, Podophyllin, Iodide of Potassium, Battley's Sedative, Prussic Acid, Colocynth, Aloes, and the Calabar Bean. The decisions they arrived at are as follows:

"1. That, as a general rule, only clear neutral solution of drugs should be injected, for such solutions rarely produce local irritation. 2. That whether drugs be injected under the

skin, or administered by the mouth or rectum, their chief physiological and therapeutical effects are the same in kind, though varying in degree. 3. But that symptoms are observed to follow the subcutaneous injection of some drugs, which are absent when they are administered by the other methods, and, on the other hand, certain unpleasant symptoms, which are apt to follow the introduction of the drugs by the mouth and rectum, are not usually experienced when such drugs are injected under the skin. 4. That, as a general rule, to which, however, there may be exceptions, clear neutral solutions of drugs, introduced subcutaneously, are more rapidly absorbed, and more intense in their effects, than when introduced by the rectum, or the mouth. 5. That no difference has been observed in the effects of a drug subcutaneously injected, whether it be introduced near to, or at a distance from, the parts affected. 6. That the advantages to be derived from this method of introducing drugs are—(*a*) rapidity of action; (*b*) intensity of effect; (*c*) economy of material; (*d*) certainty of action; (*e*) facility of introduction in certain cases; (*f*) with some drugs the avoidance of unpleasant symptoms. This plan, therefore, is most likely to be adopted, where very rapid and decided effects are required from drugs which are operative in small doses."—(*The Medical Press and Circular.*)

Bromide of Ammonium.—Bromide of ammonium is one of the best remedies we have ever used in whooping-cough. To a child of two years old, two or three grains may be used three times a day. Its value is enhanced by ths addition of hydrocianic acid and stramonium. We use a formula such as this: bromid. ammon, 60 grains; hydrocyianic acid, 20 minims; tinc. stramonium, 20 minims; water and syrup, 4 ounces. A teaspoon full of this mixture three times a day to a child of two years, will seldom fail ɉo produe a marked impression within twenty-four hours.

To Prevent Sickness, from the inhalation of chloroform, a British writer recommends that a few drops be given in water as a drink prior to the inhalation. He says the plan is successful in his hands.

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